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ABSTRACT

This document reports the first-year activities of Teacher Corps projects demonstrating the training framework entitled, Adaptation of Research Findings. These projects incorporate into their design the results of research, empirical practices and processes that have proven effective and relevant to the educational processes for schools serving low-income populations. Chapter I provides an overview. Chapter II presents an in-depth look at the evaluation process and discusses the differences between impact and process evaluations. A comparison is made among projects that focus on either student outcomes, teacher outcomes, or institutional outcomes, and the implications of these different foci are discussed. Considerations of where to begin to conceptualize the evaluation process are presented in Chapter III. The fourth chapter discusses the design of impact evaluation studies and presents some alternative approaches to evaluation such as quasi-experimental designs and the establishment of criterion standards. Chapter V discusses the design and selection of evaluation instruments. A variety of instruments are considered as well as behavioral indicators that can be used to evaluate project outcomes. Chapter VI argues that the process of evaluating ongoing activities during the course of the project is of critical importance both to the management of the project and to the eventual sharing of the project's outcomes. The importance of careful preparation of data gathered during the evaluation process is considered in Chapter VII, and the importance of the organization, display, and interpretation of data in order to maximize usefulness is emphasized. Chapter VIII focuses on some of the major problems that arise in the impact evaluation process. The final chapter summarizes the importance of both process and impact evaluations. (MM)

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Evaluating Programmatic Impact in Education

TEACHER CORPS RESEARCH ADAPTATION FRAMEWORK

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EVALUATING PROGRAMMATIC IMPACT IN EDUCATION

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Dr. Decker Walker, Stanford University

In a very real sense, this board has educated me to the possibilities and problems inherent in adapting validated research findings to a public school setting.

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Lee Morris
Executive Secretary
Research Adaptation Framework

FOREWORD

The history of educational research evidences the unending attempt to improve educational practice. Although much important information has been gleaned from such research, a problem remains. There is a quantity of available data but too little demonstrated adaptation of it to actual practice. There is even less evidence of training strategies designed for these adaptation processes. The Teacher Corps is attempting to alter this imbalance.

This document reports the first year activities of Teacher Corps projects demonstrating the training framework, entitled the Adaptation of Research Findings. As one of five frameworks, the Research Adaptation projects are attempting to incorporate into the design of their training/retraining programs the results of research, empirical practices and processes which have proven effective and relevant to the learning and educational processes for schools serving low-income populations.

This framework, like the other four, is viewed as a response to the call for a systematic change in teacher education. Specifically, this framework addresses the long time need to support efforts to, first, adapt research results as needed, secondly, to demonstrate training and retraining appropriate to adaptation, and thirdly, to apply such results to the classroom and hopefully improve educational opportunities for students. More succinctly, the framework for training to adapt research findings demonstrates the effort to merge theory with practice.

At the same time, the findings of the framework to date have verified what in the past has been left unsaid. Namely, much that is published as research-based for teacher use is not useful. Many of the materials developed for teacher use have not been adequately tested, the materials often become obsolete by the time they reach the teacher. The extent to which research results have had to be adapted clearly supports this contention.

The Teacher Corps projects addressing the concerns related to identifying and selecting appropriate research results, adapting such results to local needs, and designing appropriate training have spent a year developing and documenting the processes used to achieve their reported results.

This document attempts to report a composite picture of those project processes. An individual project profile has not been attempted. Rather, each project's documented implementation process was synthesized and reported under major headings which were identified by the document's author in conjunction with the directors of the projects. The effort should benefit all Teacher Corps projects in addition to others involved in improving teacher education.

Dr. William L. Smith
Director, Teacher Corps
U.S. Office of Education

EVALUATING PROGRAMMATIC IMPACT IN EDUCATION

CHAPTER I

EVALUATING IMPACT — AN OVERVIEW

Few words in our vocabulary can create more of an emotional reaction than the term "evaluation." The term was associated in our youth with test-taking, grading, and decisions about our future. Our own personal worth is often shaped by the evaluations we receive from others. As adults we try to have a more objective view of the evaluation process, but it always seems more acceptable to evaluate others than to be evaluated ourselves. Although evaluations of some form or another take place every day, it is difficult to become accustomed to the process.

For a number of important reasons, the evaluation process is gaining increasing significance in the field of education. Those who fund education are becoming concerned about the documentation of the impact on the quality of education students receive. In recent years increasing numbers of federally funded educational programs have included evaluation of project outcomes as a mandatory component of their projects. For example, Title III (now IV-C) of the Elementary and Secondary Education Act, which funds innovative projects in public schools, requires local, state, and sometimes federal evaluation of projects. Teacher Corps now requires evaluation as a component for all its projects. The basic question asked in most cases is "What impact has this project had upon the recipients of the services which were delivered?"

The consequence of the recent emphasis on accountability has been to sharply increase the emphasis on evaluation within projects of all types. It is not uncommon for a proposal writer to be required to include a section on proposed evaluation activities and to indicate in the personnel section that at least a half-time person with evaluation skills will be employed to carry out project evaluation activities. While some project directors are fortunate enough to find an experienced evaluator who can assist in the conceptualization and implementation of an evaluation plan, this is not common. It is more often the case that a person is hired who has had one or two statistics courses and little experience in project evaluation. This "evaluator" may have the assistance of a trained evaluation specialist from a nearby university; however, time and funds for specialists are often limited.

Because of the lack of experienced evaluators, this monograph has been prepared to provide project directors and evaluators with an overview of the evaluation process as it applies to educational projects and how it can be performed systematically and effectively. The most important characteristic of this monograph is not that it will provide a "textbook" solution to all real world evaluation problems, but rather, that it is aimed directly at the identification and consideration of problems which emerge in projects as evaluators attempt to design, implement, and interpret an evaluation strategy. The monograph draws directly on the experiences of ten Teacher Corps project evaluators. These evaluators represent a variety of academic backgrounds and several different types of projects as well. It is anticipated that readers can identify their interests with those of a number of the projects which are described briefly in the appendix.

It is hoped the reader will benefit directly from the experiences of the evaluators as they implemented their evaluation plans. No attempt has been made to gloss over the difficult problems or to make things which are relatively easy appear more difficult. The remainder of this chapter will briefly describe the succeeding sections of the monograph. Based on this overview, the reader may wish to refer directly to specific topics which are of current interest, or to read systematically from the beginning to obtain a total perspective on the evaluation process.

First, in Chapter II, an in-depth look at the evaluation process within various education projects is presented, and the differences between impact evaluation and process evaluation are discussed. The point will be made that in order to effectively describe the impact of a project, it is necessary to document and describe project activities as they are planned and carried out. This information is valuable not only for indicating the effectiveness of the project and enhancing the probability that the project products and procedures will be useful to other educators, but also for making project management decisions relative to procedural or program changes. A comparison among projects which focus either on student outcomes, teacher outcomes, or institutional outcomes is presented and implications these different foci have for the evaluation process are made.

Considerations of where to begin to conceptualize the evaluation process are presented in Chapter III. Typical evaluation systems begin with needs assessment activities such as the identification and prioritization of needs which should be addressed by the project. These assessments usually result in the statement of project goals which are converted into specific objectives.

While the process of conducting needs assessments to establish project goals and objectives is fairly straightforward, there are problems related to these activities which can and will occur. These problems are related to the project proposal, the collection of data, and the actual acceptance of stated project goals by the participants in the project. Because of these problems, there are often limitations on the objectives which are established.

The next chapter, Chapter IV, discusses the design of impact evaluation studies. While some projects lend themselves to classical, experimental design techniques which have been well known for years, there are often extenuating circumstances which make the implementation of such designs almost impossible. Therefore, some alternative approaches to evaluation studies such as quasi-experimental designs and the establishment of criterion standards for evaluation will be presented. The advantages and disadvantages of these approaches will be discussed along with a consideration of unanticipated outcomes and the use of goal-free evaluation.

After an impact evaluation design has been established, the next critical step, as discussed in Chapter V, is the design and/or selection of evaluation instruments which will be employed. It is not unusual for a project which focuses on student outcomes to select a well-known standardized test of academic ability as its major impact indicator. However, there are numerous problems with this approach, and these will be discussed. Project objectives which relate to skill and attitudinal outcomes do not always lend themselves to standardized testing. Other types of assessment instruments need to be identified. A variety of types of instruments which can be used for these

purposes will be considered as well as behavioral indicators which can be used to evaluate project outcomes.

It might appear that, after the goals and objectives of a project have been established, the evaluation design completed, and the appropriate evaluation instruments located, the evaluator can retire to other interests and wait until the project is complete to collect data and make conclusions about project effectiveness. However, it is argued in Chapter VI that this is not the case, but rather that the process of evaluating ongoing activities during the project is of critical importance both to the management of the project and to the eventual exportability or sharing of the outcomes of the project. Procedures and instruments which can be used for process evaluation will be considered along with the utility of this data while the project is under way.

The need for an information system which is available to both the project director and other project personnel will be discussed. The pros and cons of a variety of approaches to establishing and maintaining such information systems will be presented.

The importance of careful preparation for the presentation of data gathered during the evaluation process is considered in Chapter VII. Too often extensive work is done to collect valuable evaluation data which is presented in such a confusing manner that it is of little use to the consumers of the information. This chapter will emphasize the importance of the organization, display, and interpretation of data in order to maximize its usefulness by the intended recipients.

Chapter VIII focuses on a number of the major problems and issues which arise in the impact evaluation process. These problems include both organization and "people" problems and how they relate to the evaluation process. Some of the problems may appear to be trivial, however they can have a significant impact on the ability of the evaluator to collect and interpret project data. These are problems which, if anticipated in advance, can often be minimized or eliminated. However, if they are not anticipated, they may raise major questions about the effectiveness of the evaluation.

The final chapter, Chapter IX, summarizes the importance of both process and impact evaluation and the considerable significance they play in terms of the educational benefits of projects. Brief attention is given to the political necessities of implementing evaluation and the benefits which can emerge through this process. Future directions for evaluation and the evaluator are also considered.

CHAPTER II

ROLE AND SCOPE OF PROJECT EVALUATION

Historical Role of Evaluation

Several decades ago the terms evaluation and educational research were nearly synonymous. Educational research was typically performed at that time by individuals trained in the field of educational psychology or statistics. The primary purpose of those studies was to investigate the role of various learning patterns and instructional techniques. The methodology was often a combination of procedures adopted from the parent field of psychology and statistical approaches borrowed from the field of agriculture. Educational researchers were distinguished by their attempt to use meaningful learning materials in a real or simulated classroom learning situation.

In this context, evaluation was often equivalent to running T-tests between scores for an experimental group and a controlled group to determine which had learned more or had used the lesser amount of time to achieve a particular level of performance. These studies were often criticized for either the lack of rigor in their experimental designs or in the descriptions of comparison groups which often served as controls. Many studies employed a control group which represented the "traditional" approach to teaching a particular subject. For example, hundreds of studies were run at that time which compared innovations such as televised instruction or programmed instruction with traditional instruction. The results of these comparisons were often mixed and contradictory.

It was in this environment that the federal government began to provide substantial funding for curriculum development projects in the late 1950's and early 1960's. The intent of these projects was to bring the latest advances in knowledge in a variety of content areas into high school classrooms using innovative curriculum development approaches. Literally millions of dollars were invested in these curriculum development projects prior to the evaluation of the new materials in the classroom. To the concern of many, the eventual evaluation of these materials indicated that, while they were quite effective with very bright students, they were of limited value to average and below average students.

This shortcoming stimulated a number of discussions among educational researchers concerning the procedures that might be employed to avoid the funding of implementation projects prior to determining the effectiveness of the innovation. The most substantial conceptual outcome of these concerns was the paper by Scriven (1967) in which he discussed the need for both formative and summative evaluation techniques.

Scriven maintained that for years educators had conducted summative evaluations to determine the relative effectiveness of completed instructional products. He argued that a companion type of evaluation, for-

mative evaluation, should be instituted on all instructional development projects. Formative evaluation refers to the gathering of data relative to the goals of the project throughout the life of a project in order that developers may evaluate products and procedures and make necessary changes before the final version of the innovation is produced.

Both formative and summative evaluation procedures have become familiar and widely used during the past 10 years. The general distinction made between the two terms among evaluators is that formative evaluation is a process which is internal to the project and used to make revisions while the product is in its "formative" or development stage. Summative evaluation, however, is the determination of the absolute and/or relative effectiveness of a product.

While these definitions appear at first to be distinctly different, their use in practice sometimes makes them impossible to differentiate. For example, evaluations are sometimes made during ongoing projects to determine whether funding for the project will continue. In that sense, the decision to be made is a summative or ultimate one. On the other hand, some projects are of a continuing nature and employ continuous evaluation to revise or upgrade materials and therefore never seem to reach a summative stage. While it is sometimes difficult to make a clear distinction between these two processes in a project, it is critical to note the whole new approach to evaluation which has been brought about because of the concept of formative evaluation.

Given this background on formative and summative evaluation, it is now possible to place the concept of **impact evaluation** into perspective. Impact evaluation is synonymous with summative evaluation as that term is used by Scriven. Consider, for example, the definition of impact as it is being used within the context of a teacher training project:

> WHAT IS THE POSSIBLE IMPACT OF TEACHER TRAINING?
> This is the important first question that we asked in our research project. The key term in the question is "impact," by which we mean the measurable phenomena — of positive or negative value — which follow after the completion of training. These phenomena would not have occurred in the absence of training. In the language of experimental design, the training program is the independent (treatment) variable, the impact — operationalized into an array of variables — is the dependent variable. (Gall, et al., 1976)

If "impact" is considered the dependent variable in an experimental design, then a term is needed which describes the assessment of the implementation of the independent variable. Formative evaluation, as described by Scriven, is certainly a component of that description, but a broader term is required. The term "process evaluation" will be used to refer to those procedures and techniques which are employed while the project is under way in order to both describe the implementation of the project and to make changes in the project is to make it more effective.

A well designed and executed impact evaluation is the ultimate goal of each project evaluator. However, it is the thesis of this monograph that the

evaluation is strengthened or weakened depending upon the extent to which process evaluation is employed. Given this position, it is therefore worth reviewing the role of both evaluation and the evaluator within the total scope of an educational project. After reviewing this role, the various types of projects to which the techniques of process and impact evaluation apply will be considered.

Relation of Evaluation to Project Implementation

When considering the role of evaluation activities and the evaluator in an innovative project, it is worthwhile to consider the questions "Who evaluates?", "What is evaluated?", "When is it evaluated?", "Where is it evaluated?", and "Why is it evaluated?" A focus on these questions will help to spell out the role of evaluation and evaluation personnel within the total context of the project. For example, when addressing the question of "Who evaluates?", it may be noted that several decades ago, the investigator designed the study, the stimulus materials, and the dependent measure or test, while on current projects a separate individual, the evaluator, is employed to perform several of these tasks. If one accepts the concept of process evaluation, then the evaluator should be considered an integral member of the project team with responsibility to work with the entire staff as they formulate, develop, and evaluate the educational innovation. The evaluator should not be viewed as an external, non-project person who casts a value judgment upon the efforts of the project team, but rather one who will work with and facilitate the project's efforts through the systematic collection of data and information which will be provided to them in order to improve the project.

The careful reader may sense that a bias is being built into project evaluation when the evaluator is closely identified with the rest of the project and considered a member of the project team. For this reason, a number of agencies are now requiring the use of an "external" evaluator who is not directly involved with the project to make an independent judgment about the effectiveness of the project. This person also answers the question "Who?" The distinction between the two evaluators, one internal and one external, is important and will be discussed at greater length in Chapter VIII.

"What is evaluated" on a project? The initial set of questions which should be raised by the evaluator relates to the planning for the project. Are there goal statements and do they clearly reflect intended project outcomes? Are the persons to be served by the project clearly identified in terms of who they are and where they are located?

Another set of questions which should be raised by the evaluator concerns the relationship between resources and outcomes. For example, does the planned intervention appear to be adequate to bring about the changes as stated in the goals? Are sufficient personnel available to design and conduct the innovative intervention strategy? To what extent are instruments available to assess the project goals and subgoals?

When the intervention is applied to a target group, the evaluator should determine: Is the intervention actually operational? Is the intervention being documented? Have needed changes been identified and implemented? Are changes being made based on timely and accurate data collection and analysis? Is data reaching project decision-makers on a timely basis?

The final type of activities carried out by the evaluator is in the domain of impact evaluation. Were the objectives achieved? What was the absolute and/or relative effectiveness of the intervention? What amount of time and resources was required in order to achieve the identified impact? What unanticipated outcomes were achieved?

The next question in the who, what, when, where and why sequence is **"When are evaluation activities conducted?"** Evaluation activities are initiated at the very beginning of the project and are conducted continuously until the project is completed. The task is not one that is simply conducted at the end of the project, nor is it planned at the beginning and then implemented at the end — it is an ongoing activity.

"Where will the evaluation take place?" The answer is that it will occur nearly any place in which project activities are under way. The evaluator should attend conferences and planning sessions and communicate project progress. Are staff members working on appropriate tasks? Are products being completed on time? The evaluator will also be found working with the target group in its environment. The evaluator will observe the intervention in progress and administer the relevant assessment instruments.

The final question to be raised is **"Why evaluate?"** — why should there be so much emphasis on the role of evaluation in the implementation of educational projects? Clearly the first answer to this question is the need to document the impact which the project has had upon its intended target population. Evidence should be collected on the changes which occur as a result of the treatments, materials, or processes which are implemented during the project. This activity addresses the accountability question which has become so important for projects in recent years.

While the need for impact evaluation appears to be self evident, there are two other equally important reasons for emphasizing the role of evaluation in a project. The first reason is the effect which evaluation can have on the overall management of a project. The concept of process evaluation implies the continuous collection of data which are made available to decision makers during the project. These data can be employed to determine the effectiveness of the project, project materials, procedures, and progress to date. This information should suggest ways in which changes can be made to make project activities more effective and more consistent with the goals which have been established. Without this type of internal data and enlightened decision making, the project director may be in the same position as those who directed the curriculum development projects of the early 60's. Often the products can appear to be well designed and well developed, but without feedback concerning the effectiveness of products from the actual users, effectiveness is still only hypothetical. It is the feedback during the formative stages of a project that indicates the extent of the success as well as the changes that must be made to improve the project.

The third reason for heavy emphasis on the role of evaluation is the need to document the procedures employed to bring about the impact which is to be assessed. When one is conducting experimental research, it is mandatory that procedures or "treatments" employed with the learners be clearly described so that other researchers can replicate or build on the conclusions of a study. It is equally important when developing an educational innovation that the developer describe and document

procedures employed in order to bring about the desired impact. For example, if the goal of a project is to develop self-instructional materials for junior high students, critical material that should be documented includes the procedures used to design and develop these materials, the data which indicate student performance on tryouts, revisions which have been employed based on student performance, and the effectiveness of the final materials. Of great concern is the description of the employment of these materials in the classroom and any supporting materials and procedures which must be included to use them effectively. Often these details are excluded from documentation reports but they are critical to the transferability of the materials and replication of the results.

An example of the importance of documenting the treatment process employed on a project can be seen in teacher training practices. Teacher training materials, either of an in-service or pre-service nature, often are developed with the anticipation that they can be implemented in other teacher training centers with similar results. The products of such training projects are often only the teacher training materials and sometimes, a statement about the effectiveness of the materials. However, in order to implement the materials in local teacher centers and obtain the same degree of training effectiveness, it is quite helpful to also have a description of the training techniques and the teaching philosophy associated with the training. In essence, given the material, local teacher educators should be able to approximate the teacher performance outcomes with their own teachers.

In summary, one of the greatest weaknesses in past projects involving educational innovation has been a lack of process evaluation data which could have helped improve the project as it was evolving as well as facilitate documentation on the development and implementation of project activities. Without this documentation information, we simply have the information that an innovation has been tried with a particular group of learners, at a particular time, in a particular place, and that it was successful. However, there is no way to replicate and use that information within a wide range of situations because information on how to implement the innovation is excluded. The task falls on the project evaluator to assist in gathering information which will make the project more effective and to provide data for the potential user about product implementation and impact in the field. Given this information the educational community could employ the innovation if there is evidence from impact evaluation that it has been successful.

Scope of Educational Innovation Projects

In this discussion of the role and scope of impact evaluation, reference has been made to innovate educational projects. However, there appear to be at least three types of innovative projects with which educators are involved. These projects are those which are: (1) targeted on teacher outcomes, (2) targeted on student outcomes, and (3) targeted on schoolwide or organizational outcomes. These three types of projects share many of the same problems and procedures in implementing their evaluation plans. However, each type also has its own unique characteristics.

For example, some goals of an innovative project which focuses on changing teacher behavior are listed below.

1. Upon completion of training, experienced teachers and interns will demonstrate a more positive attitude toward pupils with special learning/behavioral problems.
2. Teacher trainees will demonstrate an improved ability to provide for pupils with special learning/behavioral problems as evidenced through their educational plan writing and evaluated by the principal and/or training facilitator.
3. One hundred (100) percent of the experienced teachers at the project site will voluntarily participate in staff development activities in the training complex. Eighty-five percent of the participants in training will rate the experiences as satisfactorily meeting their needs as indicated by their responses on a district-constructed rating scale.
4. Each trainee will document the adaptation of training to his/her classroom at the end of the school year. (Smith, et al., 1976)

These goals create very unique concerns for the evaluator who must determine the impact of the project. Quite often such projects, while focusing on teacher training activities, have goals which relate to increases in student performance and various other effects on the school community. The decision to establish goals of this magnitude should not be made lightly. The University of Oregon deliberated the scope of their project and the extent to which they can reasonably hope to achieve an impact beyond specified goals for the teachers with whom they work. The issues raised are absolutely critical to the total evaluation process.

The Oregon project (Gall, et al., 1976), refers to four levels of possible impact which a teacher training project might have. The first level of impact lies primarily in the number of participants who complete a specified program and their attitudes toward that program. An additional indicator of a level I impact would be the use of the training program by another agency. There are a number of questions which would naturally arise when level I indicators of impact are used, such as what was the quality of the instruction and who were the participants.

The questions about the nature of the program lead to the level II indicators of program effectiveness, namely teacher improvement. Teacher improvement can be assessed in terms of additional knowledge and skills and/or changes in attitude. There are many difficulties in measuring these changes particularly when both short-term and long-term changes are considered, as well as the problems of making classroom observations of teachers' behaviors.

Advocates of performance-based teacher education have favored what Oregon has identified as level III indicators of project impact. This level is focused on student performance and changes in behavior will occur as a result of instruction. While theory is not yet adequate to describe the teacher behaviors which will produce particular changes in student behavior, increasing numbers of studies are being carried out which investigate these relationships. The problems which are present in the assessment of level II indicators are also present when making assessments at level III.

The fourth level of impact which a teacher training program may have is the influence beyond the classroom of an individual teacher. Because of changes which take place in the classroom, other teachers may seek the training for themselves, or trained teachers may provide special training for other teachers. These are obvious examples of effects beyond the classroom. Other effects are much more difficult to either identify or assess.

The Oregon paper clearly illustrates the difficulty which a project team encounters when it establishes goals beyond those of the direct population with which it interacts. Similar concerns are appropriate for projects targeted on students or schools. Note, for example, the types of project goals which are listed below for student targeted projects.

> The Murray State Teachers Corps Project proposes to create a teacher-student learning situation to identify and maximize divergent learning potentials and styles, with the goal that each child will be properly classified as "gifted." (Hainsworth and Price, 1976)
>
> and
>
> Students at Moon Middle School will make an average grade equivalent gain of 0.8 during the first year of the project and a gain of 1.0 during the second year of the project as measured by scores on the Metropolitan Achievement Test. Students at Moon Middle School will report a statistically improved learning environment at the .05 level of confidence during each year of the project. Students at Moon Middle School will show a statistically significant improvement on the Oklahoma City Children's Self-Esteem Inventory at the end of the second year over the first year. (Smith, et al., 1976)

When a project is focused on student outcomes, it becomes obvious that the evaluation should determine whether there have been changes in student behavior relative to the goals of the project. When objectives deviate from behavioral changes or encompass groups other than those directly involved, it becomes difficult to determine whether project activities have the intended effect. Indirect, or inferred indices of success often include measures such as students' attitudes, parents' attitudes, or increased participation by community members. So many other factors can influence indirect or inferred measures that these indicators provide only limited evidence concerning the effectiveness of the activities related to project goals. This is not to infer that goals should not be established in these areas, nor that assessments should not be made of the achievement of this type goal. However, the project director and evaluator should be aware of the lack of direct influence which the project may have upon these indicators.

The third type of project is one which has a school-wide or system-wide target audience. Listed below is an example of this type of project goal.

> The FSU/FAMU — Leon County Teacher Corps Project has as its research adaptation goal the application of a theoretically derived model for needs assessment and change adoption in a public school setting (Carey, 1976).

This type of project presents several different problems for the evaluator. These projects must, in fact, be evaluated at two levels. The first level of evaluation is to determine if the process which is being employed has affected the recipients. The question is raised, "Have they learned the skills or knowledge which are to have general applicability to the education process?" The answer to this question indicates whether the treatment variable was effective or had impact. "To what extent can the recipients of the training utilize it to design, implement, and evaluate subprojects within the school?" There are many similarities between this example and the more specific teacher training project. The evaluator can determine whether school personnel have been exposed to and have participated in training activities and if they can demonstrate that they have learned the new set of skills. However, this is of little consequence if it cannot also be demonstrated that these new skills in turn were used by the recipients to improve the instructional process. Techniques must be designed to document the actual utilization of these skills and to demonstrate that the skills were effective with learners in the classroom. Again, it should be highlighted that there are difficulties in assessing attitudes when the actual recipients of the "treatment" are classroom teachers, not the students, administrators or community members.

Summary

In this chapter, the changes in attitudes toward the role of evaluation and the evaluator in innovative educational projects have been portrayed. Evaluation has changed from a **post facto** statistical design activity to an ongoing process which facilitates decision-making among the project staff and uses documentation to monitor and assess the goals of the project. It has been pointed out that evaluation is critical throughout the life of the project not only for determining the impact of the project but also to plan and implement project activities, facilitate project decision making, document the processes which have been employed, and enchance the likelihood of the exportability of the project.

Three different types of innovative projects have been described: those which focus primarily on teachers, those which focus on students, and those which focus on entire organizations. Each of these projects has its own unique problems with regard to evaluation. However, they all share common components which are to assess the first level objectives to determine the impact of the project, and to determine the breadth of the effects which can reasonably be expected as a result of the project.

CHAPTER III

RELATING NEEDS ASSESSMENT TO GOALS AND OBJECTIVES

In the best of all possible worlds, the first step in any project should be conducting a needs assessment. Needs assessment is a process which has become increasingly important during recent years, and is the initial process in developing criteria for evaluation. Needs assessment planning and activities should involve the project evaluator who should provide documented evidence concerning needs for the project. From these needs the goals, objectives, and specific activities for the project can be identified.

Agencies which have the responsibility for funding innovative research and development projects are more and more concerned about the actual needs stated for various projects. They are beginning to require proposers to demonstrate that particular needs do in fact exist and that the projects proposed will help to alleviate those needs.

Numerous models have been proposed for the needs assessment process. In this chapter the terminology used in needs assessment models will be clarified and one model will be presented which has been effectively used in the past to establish needs. The second section of the chapter will deal extensively with procedures which can be used to identify project needs when no formal needs assessment has been conducted prior to writing the proposal. The third section will consider the procedures and problems involved in converting general goals to specific project objectives.

A Needs Assessment Process

The word "need" means many things to many people. While it is a word which is found in our everyday vocabulary, in the context of "needs assessment" the word "need" has a very special meaning. Most needs assessment models require the identification of both the ideal status and the present status relative to an identified goal. For example, a school district might establish "every student reading at grade level" as their ideal status. A study of the present reading situation in the district might reveal that 40% of the students are reading below grade level. The gap which exists between the present status and the ideal status, namely, 40% of the students do not read at grade level, would be identified as a need for the district. Identifying needs as gaps between the present and ideal status relative to a specified educational outcome is the most common use of the term need. After several needs have been established, it is possible to prioritize them and to identify specific points which can and should be addressed through specific directed activities such as an innovative project.

Identified needs can be restated as goals. In our example, the fact that 40% of the students read below grade level could be converted to a goal which would state that by a certain date "all students in the district will be able to read at grade level."

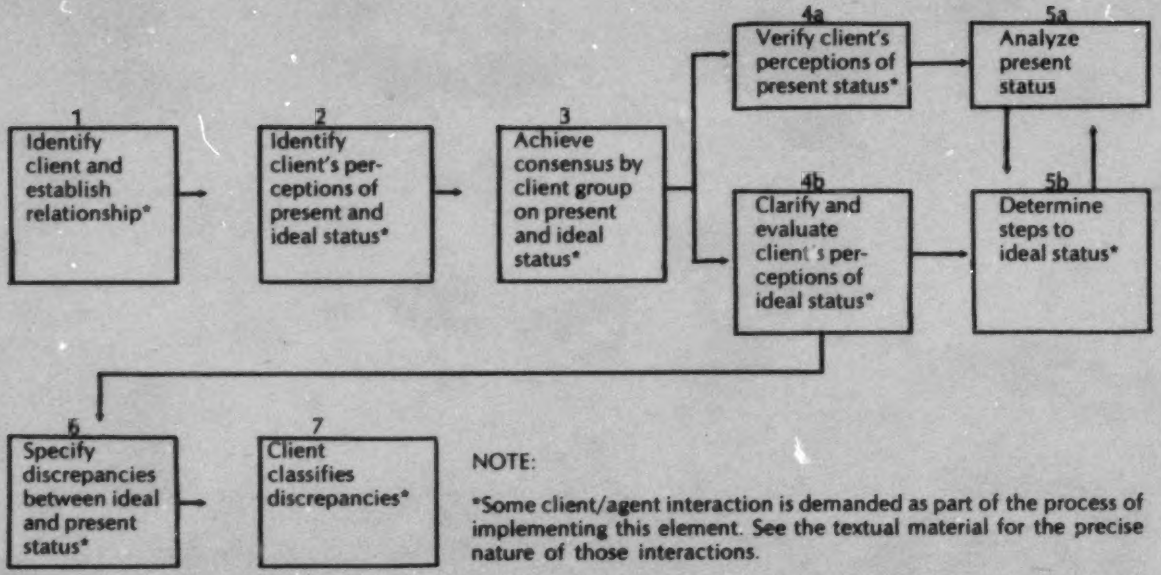
Experience has demonstrated that there are two elements in the needs assessment/goal setting process which appear to be critical to the success of innovative projects. The first element is the participation of as many different clientels as possible in the goal setting and needs assessment process. Such groups as students, teachers, administrators, parents and other community groups can be included. The second finding has been that the more clearly project goals are stated, the more targeted project efforts and activities can be toward achieving those goals, and the greater the possibility that success can be achieved.

One of the needs assessment models which clearly addresses these two issues is the Florida Assessment and Diffusion Model (FADS). (See Dodl, Kibler, Dick, Toomb, & Rollin, 1974.) The first seven steps in the FADS model represent a process whereby needs can be identified and prioritized. The diagram of this process appears in Figure 1.

The model assumes that one or more persons are working as an agent to help a client (any type of school group) to identify their needs. The process could be initiated by an external group such as several university professors working with a school district or it could be employed by several persons within a school district who are designated for this special task by the district. Step 1 indicates that a relationship must be established between the agent and the client representative. Usually, the client is represented by the Assistant Superintendent or another appointed administrator. That administrator, as shown in step 2, must identify both the present and ideal status of one or more problems which exist within the organization. In step 3, it must be determined whether others within the client group, such as teachers and other administrators, also perceive the problem as portrayed by the initial contact person or group.

Figure 1

Florida Assessment and Diffusion Model



NOTE:

*Some client/agent interaction is demanded as part of the process of implementing this element. See the textual material for the precise nature of those interactions.

Steps 4 and 5 are designed both to clarify and collect detailed information on the present status of a problem, and to clarify the client's understanding of an ideal status or solution to that problem. This step is critical not only because it brings clarity to the nature of the problem addressed but also because it involves more persons in the client group than a single spokesman for that group.

In step 6 a clear description of the discrepancy or need which exists between the ideal and present status is presented. In step 7, the client should prioritize the needs which have been identified and verified, and indicate those for which solutions will be sought.

From the use of a process such as FADS, it is possible to identify goals which can be analyzed and prioritized by the client group. As a result, the client implements and evaluates an innovative project. The process is relatively time consuming and may result in the identification of conflicting views concerning the importance of various goals within the system. This may be particularly true when the needs assessment procedures include the collection of data from parents and the community, as well as teachers, students and administrators. However, it forces communication among those who will be involved and may result in a consensus decision about the problems which will be addressed.

How to Proceed Without a Needs Assessment

We have indicated that in the best of all possible worlds, the first step in a project is to conduct a needs assessment. The evaluator should assist in conducting the needs assessment process to assure an understanding of the goals of the project. However, in reality, time and resources often are not available for an extensive needs assessment. Proposal deadlines often are too short, personnel not available, and data too extensive to conduct a thorough study. Therefore, it is necessary to consider the alternatives available to a project when no needs assessment has been conducted.

Perhaps, the first observation is that, if a needs assessment has not been formally implemented, it will occur naturally on an informal, unplanned basis after the project has been implemented.

It is quite conceivable that a valid need could be identified and a solution to remedy the need could be identified without a formal needs assessment process. If this were the case, then the activities addressed to those needs by the project staff most likely would be well-received by the client group. As solutions to problems began to emerge, the client would reinforce the project staff and activities would continue according to the preconceived plan. However, if the project addresses non-existent or low priority needs, then problems with project implementation are almost inevitable. The client who is to be affected by the project will respond in a neutral or negative fashion relative to their time involvement and commitment to the project. They may attempt in various ways to change the direction of the project to more nearly address the needs they feel are most critical.

The following is an excerpt from a Teacher Corps project in which a number of services were planned for school personnel without the benefit of an extensive needs assessment. Note, as just one example, how the

description of the role of the research counselor changed over time as the real needs of the school staff became clearer.

> To illustrate in more detail the way in which project plans have changed as the site staff interacted with Rogers School teachers, let us examine the role of the research counselor. This role, which was integral to the planning of two program components (self-analysis of teaching and using contemporary research findings), has undergone major changes as it moved from planning to reality.
>
> Because this was a totally new role, it was not unexpected that differences between the imagined role and the enacted role would occur. It is interesting to see the kinds of adaptations that are being made as this role is integrated into the project.
>
> The planners conceived of this position as a way of assisting the teachers to assimilate the new ideas to which they would be exposed in this project. As originally conceived, the research counselor would be a "redesigned" supervisor, or a resource person both trained in counseling skills and possessing ready knowledge of educational research.
>
> As the project staff assembled, however, and the characteristics of Rogers School became better understood, the directors of the project altered their expectations. Since one of the ultimate goals of the project is to have as much impact as possible on the school involved, a research counselor was employed who was aware of the systemic as well as the individual dimensions — a total human system, and individuals within that system.
>
> This position continues to evolve. The research counselor has interviewed all teachers from Rogers School who are actively involved in the project, most of the support personnel in the school, all of the administrative personnel, and several of the teachers who do not see themselves as actively involved in the project. He participates in planning activities of the project staff and focuses on the interpersonal dimensions of that interactive process. He is ready to assist teachers to focus on the interpersonal dimensions of their interaction with pupils. (Morine-Dershimer, et al., 1976).

In the example described, it was very fortunate that the research counselor changed to more nearly meet the needs and expectations of the teachers as the project was implemented. Other components of innovative projects such as instructional materials or specific teaching processes are not nearly as flexible and, therefore, could potentially be of little or no use to teachers if they did not perceive a need for the components.

Another example of the types of problems which emerge when participants do not agree upon project needs, either prior to the submission of

the proposal or after the proposal has been implemented, can be presented. In the example that follows, it is clear that the university participants, the school administration and the teachers all appear to have different needs and priorities which have not yet been reconciled into a single set of targeted activities for the project. When this occurs, it is almost impossible to get project personnel to move ahead on the project or to achieve the cooperation of teachers in its implementation.

> The priorities of the school seem to differ markedly from those of either the Teacher Corps or the Stanford participants. School staff and administrators seem to be unduly concerned with the impending move to a new open-space building, originally scheduled for this spring. Although the move will necessitate considerable change for teachers who had formerly taught in self-contained classrooms, other problems of great magnitude, such as students' language problems and low achievement, seem to be neglected in favor of preparing for the move.
>
> The Teacher Corps' concerns with community participation and bilingual and multi-cultural education are not shared by the school staff or administration. Whereas the Teacher Corps seeks to develop lasting and meaningful involvement, teachers seem threatened by parental participation in school activities, and administrators appear to interpret "community involvement" as high attendance at one-shot public relations events, such as a Bicentennial Celebration. Granted, the school may lack personnel to carry out some of the Teacher Corps goals, but no effort seems to be made to attract certificated or volunteer bilingual personnel (Berke, 1976).

When the client to be affected is not involved in the needs assessment process, there are constructive steps which can be implemented to facilitate the process. In the example given below, the writer discusses the integral role of goal setting and evaluation and their importance in overall project implementation. In this particular project, several very broad goals which included changes in teachers' self-perception and behavior, were stated in the project proposal. However, it was necessary to focus these goals on very specific kinds of perceptions and behaviors.

> The evaluation of a program which has as its outcome changes in teacher self-perception and behavior is very complex and difficult. Add to this the fact that those planning the program have not done it before and further that giving the Wainwright teachers a ready-made program which they had no part in developing would be self-defeating and the enormity of the evaluation begins to become clear. Most program evaluation specialists will insist that before any evaluation plan can be devised they must know the detailed objectives of the program. It should be clear from

the foregoing discussion that the detailed objectives for the program were not known at the program inception and are yet just dimly seen.

> In order to bring coherence into such an amorphous arena as teacher curriculum making, a number of structured or organizational decisions have been made which have evaluation consequences. The sense of powerlessness averred to previously springs not only from the psychological, sociological, and political constraints placed on teachers and teaching. Teachers in many instances do not have adequate "content" knowledge to act as curriculum developers. Without increased knowledge about subject matter and confidence in their competence in such matters, a program runs the risk of many "educational" programs; that is, being too abstract. It was therefore decided to partition instruction into four curricular areas of concern to elementary school teachers . . . (Byers, 1976).

In lieu of an extensive needs assessment, some proposal writers often employ their best professional wisdom in establishing the project goals. This creates a problem for the new project director in that the proposal writer, who may or may not have been the project director, has enthusiastically written such a wide range of goals for the project that they could not conceivably be attained within a finite period of time. This poses the problem of identifying only those activities to which resources should be allocated to bring about change. One solution to this problem is to develop a questionnaire which can be administered to all affected participants in the project. The questionnaire should include all the stated project goals which the participants are asked to rate according to their perceived importance. Faced with this situation, a Florida State University evaluator developed the questionnaire which appears in Table 1 (Carey, 1976). The items on the questionnaire were derived directly from the project proposal and were submitted to the entire staff for ranking. While there is not a great deal of variation in the rankings, this is one example of deriving priorities among project goals.

Table 1

Teacher Corps Goals Assessment

Students

77* 1. affect attitudes toward selected components of school program.

85 2. affect attitudes toward school as a whole.

85 3. affect self-concept.

85 4. affect achievement.

Students

69 5. affect behavior.

77 6. increase multicultural awareness.

69 7. increase intercultural experiences.

92 8. improve attitudes toward school.

85 9. improve motivation for school — school subjects.

77 10. improve/increase aspiration level.

92 11. improve self-concept.

92 12. improve academic achievement – achieve a mean increase in achievement.

62 13. increase use of coping behavior.

69 14. demonstrate expanded responsibility for self-direction in school related experiences.

Teachers at Riley School

85 1. exemplify a means to improve the instructional program.

69 2. will demonstrate the exportability of the change system.

92 3. will be responsive to the needs and demands of the community.

85 4. will promote collaborative decision making between school and community.

92 5. will increase beginning and experienced teacher's capability of meeting the student's needs.

77 6. will increase multicultural awareness.

77 7. will increase intercultural experiences.

69 8. will acquire competencies at institutional level.

77 9. will acquire competencies at the personal level.

92 10. will acquire competencies at the instructional level.

69 11. will demonstrate increased participation in in-service programs through TEC.

85 12. will evidence the use of FADS and Gagne's model at Riley with teachers.

69 13. will increase the ability to read, understand, evaluate, and use research findings.

77 14. adopt and diffuse innovations.

Interns

92 1. will acquire and apply skills in producing educational change, such as individualized diagnostic/prescriptive techniques.

92 2. become effective consumers of educational research findings.

85 3. develop a critical analytic approach to such findings.

92 4. develop and test hypotheses for educational problem solving.

85 5. achieve a master's degree in education.

92 6. receive Florida certification as a teacher.

School Staff (Teacher Aides, Volunteers, Secretaries)

62 1. will improve quality and effectiveness through FADS.

92 2. carry out steps to individualize instruction.

77 3. carry out steps to diagnose learner's needs and difficulties.

46 4. prescribe appropriate means of meeting identified student needs.

85 5. implement prescribed courses of action.

85 6. develop skills in parent/community interaction, such as skills useful in multicultural situation.

92 7. exhibit a more positive concept of the school.

*Percent of group ranking item "high"

The responses from such a questionnaire can be tallied and analyzed to identify those target areas viewed by the participants as the most critical at the present time. In terms of formal needs assessment methodology, participants can be instructed to consider the current status of each item, the ideal status of each item, and to assess the gap between the two before marking a form. For example, in the FSU project the participants were asked to place a check mark beside the goals they considered to be most important to the project. An item such as "become effective consumers of educational research findings" was checked by 92% of the participants. It must be assumed that being effective consumers of educational research findings was judged to be an important ideal status and that at the present time participants were not considered effective consumers.

It can be seen from the FSU example that these types of questionnaire techniques require inference and interpretation in order to identify the participants' priorities among the project goals.

A similar, but somewhat more direct, technique for assessing needs was used in the Oklahoma City Public Schools to identify in-service training needs for teachers (Smith, et al., 1976). Several statements from the Oklahoma instrument are included in Table 2. Notice that teachers are requested to indicate the usage of each item during the preceeding year and to indicate the extent they feel it will be needed during the coming year. It should be noted, however, that the items which are listed on the sample questionnaire are

basically solutions to unverified problems. For example, if a teacher should indicate that for the coming year there is a significant need to increase learning in small groups, this reflects a preference for a solution to a problem which only that teacher has identified. Perhaps one of the most critical issues in needs assessment is to find out if a problem is really a problem and not a solution to an unidentified problem. It should be noted in the Oklahoma example that, in the final page of the questionnaire, the teachers are given the opportunity to respond to an open-ended question in which they are asked "to describe the real needs" of their school terms of students' cognitive (learning), affective (feeling), and behavioral (doing) needs; teachers' personal and professional needs; program needs, and so forth. This information would undoubtedly provide a clearer picture of the school's needs as seen by teachers.

Table 2
Oklahoma Needs Assesment Form

Department of Research and Statistics
Oklahoma City Public Schools

Moon Middle School Needs Assessment
1975-1976

Department_____Date_____

Years Experience_____

PART I

DIRECTIONS: For each item of the needs assessment, you are asked to indicate your experiences during the previous year and to assess the need for that item **in your own school** during 1975-1976; therefore, you will make two responses to each item. In making each paired response, please use the numbers for the following percentages of time which each item was experienced during the previous year or is needed for the coming year.

Response	Experience With/Need for the Item
____ 5	____ 80-100% of the time
____ 4	____ 60- 79% of the time
____ 3	____ 40- 59% of the time
____ 2	____ 20- 39% of the time
____ 1	____ 0- 19% of the time

EXAMPLE:

Experience During Previous Year	Item	Need for the Coming Year
a. 5	*Textbooks in the classroom	b. 3
(Indicates that you used texts 80-100% of the time)		(Indicates that you need them 40-59% of the time)

DIRECTIONS: Turn to page 2 and begin

NEEDS ASSESSMENT

Experience During Previous Year (1974-1975)		Need for the Coming Year (1975-1976)
	I. Program Organization	
1.____	Self-contained classes for basic skills	9.____
2.____	Teaming within departments (Example: Ind. Arts projects)	10.____
3.____	Teaming for basic skills interdepartmentally (Example: LA/SS)	11.____
4.____	Skills Groups	12.____
5.____	Self-contained for related arts	13.____
6.____	Teaming for related subjects (electives)	14.____
7.____	Interest groups	15.____
8.____	Other (Explain)	16.____
	II. Teaching Students How to Learn — Individually and in Small Groups Within My Classroom	
17.____	Learning in small groups	25.____
18.____	Establishing instructional resource centers	26.____
19.____	Developing pupil self-reliance	27.____
20.____	Strengthening teacher diagnostic skills	28.____
21.____	Designing individualized Prescriptions for students	29.____
22.____	Achieving joint student-teacher designs for prescriptions	30.____
23.____	Building greater student independence	31.____
24.____	Utilizing students' interests and choices for instruction	32.____

III. **Student Groupings**

33.____	Total class — no grouping	39.____
34.____	Large groups	40.____
35.____	Small groups	41.____
36.____	Individualizing	42.____
37.____	Departmental grouping	43.____
38.____	Other (Explain)	44.____

IV. **Instructional Techniques**

45.____	Lecture	54.____
46.____	Demonstrations and performance	55.____
47.____	Discussion techniques	56.____
48.____	Intensive-involvement (field trips, class projects, etc.)	57.____
49.____	Interactive media	58.____
50.____	Instructional television	59.____
51.____	Programmed lab instruction techniques	60.____
52.____	Contracts	61.____
53.____	Community Resources	62.____

* * * * * * * * * * * * * * *

VII. **Organizing to Improve Student's Self-Esteem and Individual Responsibility:**

123.____	Establishes understanding of student responsibilities and limits	132.____
124.____	Chooses own courses of action within limits	133.____
125.____	Accepts failure and success with positive support	134.____
126.____	Confidence within groups	135.____
127.____	Pride in school	136.____
128.____	Pride in achievement	137.____
129.____	Achieves at highest level possible	138.____
130.____	Understands and accepts others	139.____
131.____	Assumes various roles in goal-oriented work groups	140.____

PART II

DIRECTIONS: Considering the items in Part I and your previous experiences in working with the in-between-ager, describe the real needs of your school in terms of students' cognitive (learning), affective (feeling), and behavioral (doing) needs; teachers' personal and professional needs; program needs, etc. Finally, assign one of the following priorities to each of the needs you have listed:

Priority 1: Missing component or unacceptable condition that must be changed at the outset of the school year.

Priority 2: Weak component which needs strengthening during the coming year.

Priority 3: Non-critical situation to be corrected over a period greater than one year.

Use the space below and the next page to describe the needs and priorities of your school.

These examples suggest that neither the project director nor the project evaluator can proceed very effectively without clearly identified goals. If goals are not stated in the proposal, if they are not stated clearly, or if there is a profusion of goals, then difficulties are likely to arise in the project. Experience seems to indicate that if the participants in the project are not given the opportunity to help identify and clarify the goals in a variety of ways, they will, after the project is under way, indicate the extent to which these goals are consistent with the needs which they perceive in the school setting. The next phase of the needs assessment process is that of converting goal statements into specific objectives which is another activity which should directly involve the evaluator.

Deriving Specific Objectives

Project objectives can be viewed in much the same way as Mager (1962) viewed the development of learning objectives for instruction. All the arguments which have been posed for the use of learning objectives are also valid for the need to specify specific objectives for projects. While goal statements may indicate a general intent, the objectives should describe the specific changes which are to occur.

There are basically two types of objectives which can be derived from general project goal statements. The first are objectives which relate directly to project activities themselves. Examples of this type of objective are listed below.

1. Through a collaborative effort, institutions of higher education, the local education agency and the community served by it will develop a plan for continuous implementation of a staff development process at the project site and for expansion of the concept to the entire school district.
2. To establish a training complex (Staff Development Laboratory) at a school site through which competency-based programs will be delivered to groups and individuals.
3. To establish an on-going educational personnel development process at the target site.
   a. To recruit, select and train four interns in a specialized program leading to a Master's Degree.

b. To provide the educational personnel at the target site with training which will enable them to be more effective in dealing with students of diverse economic, social, ethnic background and exceptionality.
c. To provide optional graduate credit from participating institutions of higher education for professional development activities.
d. To train twenty-five community patrons for roles in service to the school.
e. To recruit and train forty volunteers for community service roles. (Smith, et al., 1976)

The second type of objectives is directed specifically at the target population to be affected by the implementation of the project. Chapter II includes examples of specific types of objectives to affect student behavior or performances as well as that of teachers.

The statement of specific objectives is critical to any project for two reasons. The first is that the objectives should be used by the project director to focus project activities toward their achievement. For example, if one project objective is to make at least 500 self-instructional modules available to teachers in a teaching center, then funds must be expended to search for and identify appropriate modules and to make them available to teachers through the center. Likewise, if the objective is to have all students in the fourth grade reading at the fourth grade level, then project funds must be expended to diagnose present reading difficulties, to prescribe instructional activities for identified difficulties, and provide instruction which is needed to increase reading performance in the fourth grade.

The second reason for the development of specific project objectives is that they are the cornerstone upon which the evaluation process will be conducted. It is critical that the evaluator have such objectives available in order to design appropriate evaluation activities and to develop instruments which will fairly and accurately measure the extent to which the project has been successful in achieving these objectives. It is almost inevitable that, as the evaluator attempts to clarify goal statements through writing specific objectives, differences in interpretation of goals will emerge. The establishment of objectives is an invaluable process in clarifying and specifying exactly what it is that the project hopes to attain.

From an evaluation point of view, one of the most critical aspects of establishing objectives is the criterion or standard which is established for the objective. These standards will have a significant effect upon both the decision of the impact evaluation and upon the instruments which are used in that evaluation design.

Summary

This chapter has emphasized the value of a needs assessment prior to establishing the goals for a project. FADS was presented as one such process which can be employed. A number of after-the-fact approaches to needs assessment were given with examples from various projects. After project goals have been established, it is necessary to derive specific objectives in order to target project activities and to design the evaluation plan.

CHAPTER IV

DESIGNING IMPACT EVALUATION STUDIES

Many project evaluators have had formal training in descriptive and inferential statistics. In these courses they learned the rigors of applying analysis of variance, covariance, and multi-variate analysis to educational research problems. Evaluators are keenly aware of the need for randomized assignment of students to treatment groups and the absolute necessity of using control groups for any experimental study.

The purpose of rigorous standards for the conduct of research studies is that they assure, to the extent possible, the validity of the outcomes which are observed. However, it is almost impossible to establish the appropriate research conditions to implement a true experimental design within many educational projects. Therefore, compromises must be made to accommodate conditions within the local setting. In this chapter, a description of the alternatives which are available for designing a project evaluation and a consideration of the factors which influence the measurement of the impact of the project will be presented.

When considering where to begin the design of the impact evaluation, it is necessary to examine the project objectives as described in the previous chapter. The goals of almost every innovative project usually include the development of new materials or procedures and supplying these to a client group. It is the purpose of the evaluator to document the nature of the services provided and to assess their effectiveness and their efficiency. The documentation process will be described in Chapter VI. Process evaluation data can also be used to determine the efficiency of services which have been delivered. Therefore, the assessment of the effectiveness of services will be the major concern within this chapter.

How Objectives Influence the Evaluation Design

Consider the three objectives listed below:

1. Teachers receiving treatment X will score significantly better on a posttest than a group of teachers who do not receive the treatment.
2. Teachers receiving treatment X will score significantly better on the posttest than they did on the pretest.
3. Teachers receiving treatment X will achieve an average score of 70% or better on the posttest.

The wording of these objectives has a significant effect on how the impact of treatment X will be determined. For example, in objective 1 it is assumed that there will be a sufficient number of teachers to participate such that half of them can be assigned to treatment X and half of them can be assigned to no treatment. It is also assumed that each of the teachers will be assigned to the two groups on a random basis. If teachers can be ran-

domly assigned, the pretest can be administered to both groups, the treatment can then be administered to one group, and then identical posttests can be given to both groups. In this instance a true experimental design has been established. This type of impact evaluation is most desirable because threats to internal and external validity of the study are minimized. There is still the possibility that the pretest could significantly influence the outcomes.

When there is the possibility of a pretest effect, or an interaction between the pretest and the treatment, then it is possible to use the Solomon Four-Group design as described by Campbell and Stanley (1963). The excerpt below, from the Central Arkansas Teachers Corps report (Holland and Gentry, 1976), describes the application of this design to a situation in which the dependent variable of interest is teacher attitude.

> It is probably a consensus that attitude cannot be measured with the degree of precision attainable in measuring many other human characteristics. For this and other reasons, the influence and impact which teacher attitude has upon the effectiveness of the instructional process is difficult to determine. Nevertheless, most educators consider this to be a variable which exerts a substantial and important influence upon both the affective and cognitive development of the child.
>
> Two aspects of teacher attitude have been selected for study — teacher attitude toward special education students and teacher attitude toward curriculum. Four groups will be utilized in the study. The groups are:
>
> **Group I** — This group will consist of approximately 33 teachers employed at Franklin Primary School in the Little Rock Arkansas School System. This group will receive in-service training in an individualized program designed to improve teacher competency in meeting the individual needs of students in classrooms where special education students have been mainstreamed back into the regular classroom.
>
> **Group II** — This group will consist of approximately 33 teachers selected at random from the Little Rock School System who will be teaching in "mainstreamed" classrooms but will not have received the in-service training.
>
> **Group III** — This group will be composed of teachers randomly selected from the Little Rock School System who have had no in-service training and are teaching in classrooms with no mainstreamed pupils.
>
> **Group IV** — In order to compare data from teachers in a different geographical location with that of teachers in the Little Rock School System, Group IV will be composed of teachers randomly selected from the Conway School System,

Conway, Arkansas. These teachers will receive in-service training similar to that provided to teachers at Franklin Primary School but they will not teach in classrooms containing mainstreamed students.

Measurements will be made on the above groups by administering both the **Curriculum Attitude Inventory** and the **Rucker-Gamble Education Program Scale**. Group I and II will receive both pretest and posttest. Groups III and IV will receive posttest only. The design may be depicted in the following modification of the Solomon Four-Group design:

Group 1	:		O_1	X_1	O_2
Group II	:	R_1	O_3		O_4
Group III	:	R_2			O_5
Group IV	:	R_3		X_2	O_6

Where: O = observation (testing and measurement)
X_1 = U.C.A. Teacher Corps in-service training
X_2 = In-service training similar to X_1
R_1, R_2, R_3 = Randomly selected groups

This design is particularly effective because the results of Groups I and II can be compared with those of III and IV to determine the effect of the attitude pretest. The scores of Groups I and IV can be compared with those of II and III to determine if the treatment effected teacher attitudes. The interaction term will indicate the relationship between the pretest and the treatment.

It should be noted that if there are only a small number of teachers and if they cannot be randomly assigned to the treatment groups, then the evaluator is immediately faced with the problem of attempting to create a valid design which will determine whether project objectives have been achieved.

Now consider objective 2: Teachers will achieve a significant gain between the pre- and the posttest. Objectives such as this seem to require testing only of one group which would receive treatment X after receiving a pretest and prior to taking a posttest. This is an extremely weak design because there are numerous other factors which might influence a particular outcome. For example, other learning activities may be available at the same time the treatment is provided, and these activities may have created the observed gain rather than the treatment. Even given this weakness, this type of design is superior to one which includes only a posttest. With the existence of a pretest, at least it can be documented that a particular group of teachers, however chosen, could not perform the task before the treatment and could perform it afterwards. The major question remaining is whether the treatment itself or some other factor was responsible for the outcome that was observed. This matter is discussed further in Chapter VIII.

In objective 3, teachers will be assessed to determine if they achieved an average score of 70% on a posttest. This objective implies that the achievement of a score of 70% on a particular test is a worthy outcome for teachers. The way this objective is stated, the achievement level of teachers prior to the treatment is unknown. This type of evaluation design does not necessarily require any type of statistical test. Rather, it simply calls for the measurement of teacher performance following some type of treatment to determine whether their performance at that particular time is at a stated level or standard.

This third approach, one which sets pre-established criteria and standards, is a relatively new approach in impact evaluation. The West Virginia Teacher Corps Educational model directly addresses the issue of using criterion standards by employing measurements which are objective-referenced, i.e., directly derived from the project (or system) objectives. Grodsky, et al. (1976) has stated that:

> We hope to avoid a persistent problem in measuring performance by not attempting to compare pupils in the program with some general population of pupils. Rather, after the given objectives have been determined, the research is concerned with comparing the behavior of the pupils at the output with the objectives. If the behavior measured at the output is not what is desired or if the attendant costs are too high, decisions can be made accordingly (p. 16).

The greatest assumption in the use of criterion standards as a means of evaluating the effectiveness of a project is that the evaluator, project personnel, and agencies to which the project is accountable can determine appropriate criterion levels for various assessment instruments. They must be able to identify a level of performance which demonstrates to their satisfaction acceptable proficiency. For some dependent measures, like a particular reading grade level, acceptable standards would seem relatively easy to establish. It is more difficult when the dependent measure is an attitude questionnaire for which there is no base-line or normative data. With questionnaires it is nearly impossible to indicate, in advance, the level of response that would be acceptable. In these cases it is almost mandatory to administer the instruments prior to the treatment in order to develop base-line data which can then be used to set a goal for the project.

The Michigan State project is an example of a project which has rejected the experimental design approach to evaluation. They have instead, stated interest in the achievement of certain specific skills and attitudes by project personnel as illustrated in the description below.

> It is from the deliberations of the Evaluation Policy and Operations Committees that the activities of a program evaluation plan have emerged during the Fall of 1975. One very important idea to emerge from these activities was that the evaluation of the MSU-LSD 10th Cycle Teachers Corps program should not be thought of as a "horse-race." Horse-races always have several entrants, and the public is in-

terested primarily in the winner. The MSU-LSD Teacher Corps program is not being compared to any alternative program. The question posed was, "Can the staff of an elementary school learn to become effective curriculum developers, and can they also learn the confidence necessary to use their curricular skills?" There is nothing in this question which suggests a "better than" comparison.

Since the comparison to other programs question is not implied, the evaluation must be recast to ascertain the change in the quality and quantity of curricular decision-making by the teaching staff. As the previous discussion suggests, curricular development requires a number of skills and motives. First, teachers must become aware of curricular shortcomings and injustices. Second, they must possess the skills to right these wrongs. Third, they must believe that they are competent. And finally, they must have the skills to effect the changes they want. These four ideas provide a general framework from which a series of evaluation questions can be devised. (Byers, 1976)

Project objectives which are not necessarily related to cognitive or attitudinal outcomes often lend themselves to a criterion evaluation design rather than to an experimental design. As an example of this, consider the objectives listed below for one component of the Oklahoma Teacher Corps project.

Forty (40) volunteers will be trained for community service roles which are school-related.

1. Upon completion of training, each community service trainee will voluntarily work with school personnel in at least one on-going school-community activity.
2. Upon completion of training, each community service trainee will initiate at least one school-community project involving at least one other community patron who did not receive Teacher Corps training. (Smith, et al., 1976)

The evaluation of the attainment of these objectives consists primarily of the observation of forty trained volunteers in terms of their voluntary behavior after the training has been completed. In essence, the indicator for each volunteer is either a 1 or a 0 for each objective; they either volunteer to work with school personnel at least once or they do not, and they either initiate at least one school-community project or they do not. The design for this type of evaluation would simply be to determine the time period during which these responses would take place and to specify indicators which would serve to illustrate that volunteers had in fact completed both types of activities. This data could be summarized to indicate the number of volunteers that achieved the objectives and the number who did not. While the data for these criterion-referenced standards may be perfectly valid, the causes of the behaviors are still in question. Can we be sure that the

volunteers in the Oklahoma project who achieved the objective did so because of the particular training they received or might there be other factors which would have also influenced a control group to volunteer for the same types of activities? While this question cannot be answered, it does emphasize the critical need for employing extensive project documentation techniques when criterion standard designs are utilized.

Limitations of Change Measurement

Regardless of the approach the evaluator plans to use in an impact evaluation study, an awareness of the number of factors which will influence the outcomes of that study is important. These factors have been reviewed in detail in the Florida State Project report (Carey, 1976) and are summarized here because of their relevance to the evaluation design task.

The quantification and evaluation of impact or change that may be attributed to a specific treatment or activity is evasive when the scope of a study is as small as one particular treatment or a series of related treatments. However, when the evaluation of impact is attempted in large, multi-phased projects which involve many groups, treatments, and expectations, the considerations involved are magnified. The scope of the assessment problem increases in proportion to the number of areas in which the project is seeking to affect change.

Events that can occur which confound the evaluation outcomes include the following: (1) instructional or program events that occur between pretests and posttests, (2) non-instructional events and activities which occur either during assessment activities or program activities, (3) the effects of pretesting on performance both in instructional activities and on the posttest, (4) the effects of statistical regression toward the mean, and (5) the generalizability of impact within a specific population.

While it is not possible to deal with each of these research design problems in depth (see Campbell and Stanley, 1963, for such a discussion), it is important to note the more common difficulties which arise in evaluation research. For example, seemingly an appropriate experimental design might be used in which the experimental groups receives a "treatment" which is not received by the control group. When long term training is involved it is almost impossible to attribute the change which occurs between the pretest and the posttest solely to the treatment. Therefore careful documentation of project, procedures and outcomes are required to help insure the exportability of the project results as well as the procedures.

Other changes may occur during a project to effect the outcome such as changes in the workload of the teachers, teacher attitudes toward the instruction or the project, or disruptive events in the school. These too will have their effect on any type of pretest-posttest assessment.

A third factor which may influence performance is the pretest per se. Feedback to the teachers on their test performance or discussion about the test by the teachers may result in later changes in test scores, regardless of the instruction. Steps should be taken to consider this interaction in the evaluation design, or it should be considered part of the instructional process, and used and documented as such.

It is not uncommon to find a project focused on a particular sample of a

population which has been given a pretest. The lowest 25%, for example, may be singled out for special treatment. In this case, the evaluator should be aware that there will be a statistical regression toward the mean on the posttest. When extreme segments of a test population, either high or low, are retested, even without any intervening instruction, the scores of the lowest students will tend to be slightly higher and the scores of the highest students will tend to be slightly lower, i.e., there will be a regression of the scores toward the mean. Therefore, the evaluator should demonstrate caution when interpreting the outcomes of studies which involve participants from the extremes in a tested population.

As indicated in the Florida State report, and as emphasized in this monograph, the generalizability of any research findings is dependent upon a complete description of the study such that an experienced educator could replicate it. Obviously exact people, places and dates can not be replicated. Therefore, the evaluator should try to ensure that there are as few "unique" factors operating in the study as possible and should describe any which do occur which may have significantly influenced the study.

Matching Evaluation Design to Local Conditions

It is a major responsibility of the project evaluator to align the impact evaluation design with the goals and objectives which have been stated for the project. This should not be viewed as a one-time-only task. Clearly, there will need to be negotiations with regard to both the design and the goal statements. It may be necessary to not only manipulate the evaluation design to fit the goals, but also to adjust project goals to the constraints for collecting evaluation data which exists in the project. The value judgment can be made that it is of greater value to obtain valid data on a limited set of objectives than to have a great deal of data which have questionable validity for a wide range of objectives. It goes without saying that the constraints and limitations which are present within nearly every project will have a serious effect upon the evaluation design which can be implemented.

It is the task of the evaluator to identify these constraints and to examine all possible designs which could be established to assess impact. The kind of design that will be used should be established at the beginning of the project as well as the constraints and limitations of the design. Every possible precaution should then be taken during the project to minimize the factors which are likely to cause problems with the design or create possible extenuating circumstances relative to project outcomes.

In selecting the evaluation design, serious consideration should be given to the merits of an experimental design versus the criterion standards approach to impact evaluation. Educators have been criticized in the past either for their sloppy research designs or for their impeccable designs which generated trivial results. Using the criterion standards approach does not avoid either one of these problems. The use of such standards does not avoid the problem of atrributing causality to changes which are observed. It does not prevent one from setting standards in areas which may, in fact, be trivial or for which no base-line data exists to judge the significance of the standard which has been set. However, in areas in which meaningful criterion standards can be set and a reasonable amount of control can be established to

assure that the achievement of the standards is primarily attributable to the treatment, this approach offers a reasonable alternative to other experimental design techniques.

Unanticipated Outcomes and Goal-Free Evaluation

Many project directors and evaluators have noted that, given a two to three year project, the goals of the project change during the life of the project. This creates unique problems for the evaluator: Should the original evaluation design be rigidly adhered to and outcomes measured which are no longer relevant to the project? Should the old design be scrapped and a new one established as a result of the new goals for the project?

In most cases, the answer is somewhere between these two extremes. Usually most of the original goals of the project are maintained but a new one is established. It is reasonable to try to develop an evaluation strategy for that new goal. This may require the design of new evaluation instruments or forms. It obviously will involve some changes in project procedures and the treatment implementation which are involved. These changes should be carefully documented so readers will understand when the change in goals took place, when the change in program took place, and the evaluation plan which was established at that time.

Changes in project goals often are the result of unanticipated outcomes of the project which are identified through formative evaluation techniques. For example, it was noted in the trials of a well-known science curriculum that apparently because of the individualized instructional nature of the packages which were being used, the students were making very significant reading gains. It would seem reasonable at that point in the project to define a new project goal which would be "to raise the reading level of students who are participating." This new goal might or might not result in changes in instructional materials but it certainly would affect the types of evaluation instruments that would be used and the kinds of control groups that would be required to assess actual gains in reading.

Scriven (1975) has advocated that goal-free evaluation be used in addition to goal-directed evaluation. The designs and techniques which have been discussed in this paper are those which are derived from goal statements and objectives and are focused directly on behaviors which are intended to be changed as a result of the project. Scriven argues that an additional type of evaluation should be conducted which includes observation and assessment of the impact of the project with regard to an assessment of needs known to exist among that population. Scriven has argued that an evaluator should be employed who is not knowledgable about the project goals and who uses various techniques to determine what is happening to the target population. This method of evaluation would identify many of the outcomes intended for the project as well as a number which may not have been intended at all but none the less are a consequence of the project.

It is fair to say that while Scriven's ideas have merit, they have not been widely adopted within educational projects. The costs of such evaluation seem to outweigh the significance of the findings of such studies. Project directors tend to be most concerned about the degree to which their project has been successful in meeting the needs and goals which have been

identified. The extent to which these goals have been achieved indicates their success. Other outcomes which may have been realized are only of peripheral interest until more effort can be applied directly to enhancing these outcomes. One advantage of goal-free evaluation, however, is that it may detect effects which are detrimental to the success of the project and, when discovered, can be eliminated.

Summary

Various evaluation designs have been presented in this chapter. When possible, true experimental designs are preferred; however, it is often necessary to use quasi-experimental designs. It is also possible to set criteria of standards as the goals for the project and determine the extent to which these have been met. Various factors which can limit the interpretation of project outcomes have been discussed. The pro's and con's of goal-free evaluation were also presented with the conclusion that this approach is often beyond the financial capabilities of a project.

CHAPTER V

DESIGNING AND SELECTING EVALUATION INSTRUMENTS

Perhaps no single decision made by the project evaluator is more critical to the project than the design and/or selection of the impact evaluation instruments. Consider for the moment that it is not uncommon for research and development projects to be funded for hundreds of thousands of dollars. Untold numbers of work hours, both paid and unpaid, are often expended to make the project as successful as possible. However, it is not uncommon to find that only a very small amount of time, money, or effort has been allocated to the development and/or selection of appropriate evaluation instruments. In essence, a description of the success or failure of a very large project often depends upon the questionable results of a few poorly selected instruments.

At no point in the entire evaluation process is the diligence and perseverance of the project evaluator more critical than at the instrument selection stage. The evaluator is accountable for either designing or selecting assessment instruments which are consistent with the goals and objectives of the project and which will provide reliable evidence of the impact, or lack of impact, of the project.

The evaluator is faced with two very basic decisions. The first decision is "Which instruments will be used to assess project impact?", and secondly, "How many instruments will be used to assess project impact?" Because of their influence on the evaluation design, both of these questions must be answered in a rational, professionally responsible manner.

There are basically two alternatives to the question, "Which instruments should be employed?" The first alternative is for the evaluator to design instruments which match the objectives of the project. The second is to select instruments which are already developed and available. The advantage of developing instruments specifically for a project are that the evaluator can be confident that the items included on the instrument are directly related to the goals of the project. The instrument can be reviewed by the project staff and revised if necessary to keep it relevant to project goals. In addition, the instrument can be field tested with the appropriate target population and revised accordingly.

The greatest difficulties in the development of new evaluation instruments are the problems of reliability and norming of the instrument. The development of new instruments requires a great deal of effort to reliably and validly measure the objectives which have been established for the project. In addition, there is usually insufficient time to develop and set norms for a test or to obtain data on how the target population would typically respond to an instrument. If a project wishes to use a criterion standard as part of an evaluation design, i.e., to establish a particular goal such as 80% or 90% performance on a particular instrument, it is very

difficult to obtain information about the existing level of performance or attitudes in the target population.

If the evaluator is required to develop some of the assessment instruments, it is recommended that a subject matter specialist be heavily involved in the process. This helps to insure the validity of the items and the acceptance of the items as true indicators of the success of project activities. Experience has shown that developers will often reject the results of such instruments as invalid unless they themselves or another subject matter specialist participates in their development. This recommendation applies equally as well to student attitude questionnaires or community surveys. Poorly phrased questions can at best result in ambiguous data, and at worst lead to the judgment that the project personnel are naive to "real world" conditions and therefore undeserving of careful consideration on the assessment form.

In order to have an instrument which has established norms as well as evidence of reliability and validity, the evaluator may wish to select from among already existing evaluation instruments. This requires a thorough search of standard lists of evaluation instruments as well as the examination of instruments which have been used on similar projects. While such instruments may be quite reliable, there are always major questions relative to the validity of the instruments with regard to a particular project's goal and to the correspondence between the group upon which the instruments were normed and the target group in a specific project. The validity question is extremely critical and is perhaps most often ignored in project evaluations.

A great deal of time, effort, and money can usually be saved when the evaluator can identify an already existing test which can be included in the evaluation design. However, it is imperative when such a test is selected, it corresponds as directly as possible to the goals of the project. The consequence of selecting a test which does not focus on the project goals is that the time and effort spent in the project treatment are directed toward specific outcomes while the instruments measure other outcomes. This would obviously not be a valid evaluation of the project's direct effectiveness.

When designing and selecting instruments, the evaluator must determine, "How many evaluation instruments will be utilized to assess the impact of the project?" Sometimes this question can be answered quite easily because there are no instruments available and therefore one or two instruments will need to be developed especially for the project. On the other hand, there are sometimes many, many instruments already available or ones that can be modified to assess the project's impact.

One strategy is to use as many evaluation instruments as are available in order to detect any possible changes which may have occurred as a result of the project. This is sometimes referred to as the "shotgun" approach. While this procedure may result in the detection of certain changes, it is an extremely costly approach considering the time required for respondents to complete the instruments and the time required to record and analyze that information.

It is highly recommended that the evaluator be extremely judicious and choose only those instruments which are directly related to the outcomes of the project. If the instruments selected or developed are valid and reliable, they should provide the information required to evaluate the project. The

use of a few carefully chosen instruments will avoid a great deal of hostility which may arise on the part of those who are evaluated.

Initiating the Instrument Development/Selection Process

The process of instrument design/selection should begin with an examination of the project objectives. Each objective should be examined separately and the behavior which represents the achievement of that objective should be carefully described. When such an analysis is complete, the types of behavior which emerge are usually one of the following: (a) cognitive outcomes, i.e., knowledge gained by the participant as a result of instruction; (b) skills, i.e., the application of knowledge gained through instruction to particular situations; (c) attitudes towards oneself or some activity; (d) behavioral indicators, i.e., some action taken which indicates a choice of performance which is exhibited by a member of the target population.

One helpful way of beginning the process is to draw a grid which encompasses all of the goals of the project and indicates the types of evaluation instruments which will be needed. Below is an excerpt from the Michigan State report with an illustration of such a grid. Note that the left column indicates the type question which should appear on the instrument. The first category is equivalent to assessing attitudes, while the second represents the testing of knowledge and cognitive skills, and the third is equivalent to skill application.

> Table 3 provides a general template for the development of evaluation instruments, items, and/or procedures. The actual selection and construction of each curricular area's evaluation instruments rests with the particular curriculum development team.
>
> The curricular development teams are to identify the cells of greatest interest by early January 1976. Following this identification, they are to construct items and/or procedures to assess the status of the Teacher Corps participants on each identified cell. These items from each development team will be combined into a single or a series of instruments and administered to all the participants as early in the Winter Term 1976 as is feasible. The same, or at least parallel forms of these, instruments will be used again in June or early September 1976 and finally in June 1977 at the close of the projects. These observations will constitute the major source of teacher data for determining the effects of the 10th Cycle Teacher Corps In-service Training Program (Byers, 1976).

Table 3
Teacher Corps
Evaluation Planning Grid

Type of Question/Context		Tasks of Teaching: Assessment	Goal Setting	Instructional Strategies	Evaluation
Self-perception and valuing of skill	Pre-active				
	Inter-active				
Actual skill levels	Pre-active				
	Inter-active				
Employment of skills in professional activities	Pre-active				
	Inter-active				

Measuring Cognitive Outcomes

Perhaps the type of assessment most familiar to all educators is testing the cognitive knowledge of learners. Our techniques for measuring reliability and validity have been perfected for this type of assessment. Nearly all innovative projects which focus directly on student learning outcomes will use this type of assessment technique. Included below is the cognitive testing plan which is being used in the Teacher Corps project at Glassboro-Camden. In this particular project, cognitive tests are administered on a daily basis and norm-referenced, standardized tests are used as a pretest/posttest assessment of project impact.

> There are three frequently used ways to measure performance. First, continuous measures are those measures which are taken on a daily basis. If rapid and accurate program decisions have to be made, the records of the daily measures may be chartered and summarized as weekly learning. Or the daily measures may be stored and totaled each week, month, or even each year. The use of daily measures requires staff training. The data sheet 7601 is used for specific performances called pinpoints and for instructional interventions called phase changes.
>
> The second form of measurement used in schools, criterion-referenced testing, is a measure of how many and what objectives are being met. The Glassboro-Camden project has decided not to use this type of data collection system at present.
>
> The third type of measurement used for many ongoing programs and projects is termed pre-post testing. Usually achievement tests, also called norm-referenced, are used to measure progress. The pre-post achievement testing data to be collected in this project is summarized on sheet 7603. (Brent, et al., 1976)

The Glassboro-Camden project typifies many projects targeted directly on the learner. Daily or weekly tests are especially designed for the project. In addition, standardized tests are used to assess the long range impact of the project. In the latter part of this chapter, we will return to the advantages and disadvantages of using standardized tests for impact evaluation.

Measuring Skill Outcomes

Many projects are concerned not only with the acquisition of knowledge but also the demonstration of specific skills. These skills often must be demonstrated in the context of a classroom. Therefore, the emphasis in training is upon the application of skills in a laboratory or clinical situation.

An excerpt from the evaluation plan from the West Virginia project (Grodsky, et al., 1976) appears in Table 4. Note that the evaluator has listed

Table 4

Portion of Elementary Education Curriculum Summary

objectives	subset of objectives	curriculum	course goals	student evaluation
Objective 1	1. Provide the student with experience in how children develop, learn, and behave. 2. Provide the student with knowledge and evaluations of teacher-learner interaction. 3. Provide the student with experience in executing and reporting an experimental approach to teaching.	Indepth Disciplinary Base [Part II]	1. Utilization of the literature in child development and psychology. 2. Recognition and knowledge of the various developmental cycles and the influence these have on learning and memory. 3. Recognition and knowledge of various learning theories and their application to classroom practices. 4. Recognition and knowledge of models of memory and problems of storage and retrieval. 5. Knowledge of the physiological basis of learning and memory and problems associated with deficits in the neurophysiological status of the child.	1. Use of the literature. 2. Knowledge of the major development and learning theories. 3. Application of the data in the literature to applied problems in the classroom. 4. Design of experiments to be conducted in the classroom, laboratory, or in a clinical situation.
Objective 2,3,4	1. Provide the student experiences in the analysis, synthesis and evaluation and application of research. 2. Provide the student with experiences so that he/she can plan a long term instructional program based upon the interests, abilities, backgrounds and aptitudes of specific pupils. 3. Provide the student with experiences which will allow for development of their own or another model of planning and executing learning experiences for pupils based on a research oriented decision making model.	Core [Part I]	1. To have knowledge of the sources of literature in education and related areas and to become efficient in the use of these resources. 2. To interpret data on long-term planning relative to the needs of pupils. 3. To have knowledge of the application of different research strategies in order to gather data and to store and retrieve such data in a unique manner. 4. To understand the application and limitations of research for planning educational experiences. 5. To understand the differences and similarities among educational goals and objectives, instructional objectives, and learner objectives. 6. To understand the use of a decision-making logic in educational planning and deal with alternatives on the basis of costs and values.	1. Written research critique evaluation. 2. Exercises in observation, interpretation, and prediction of behavior by simulated, clinical and laboratory experiences. 3. Conduct of research which requires the collection and interpretation of data. 4. Evaluation of knowledge on data gathering instruments on pupils and their interpretation.

the project objectives in the left column, has indicated the course training goals in the center column, and in the right column has indicated the type of evaluation which will be required.

In this example from West Virginia the student will not be asked simply to provide knowledge about research, but rather will be required to critique research and eventually conduct research to demonstrate skills which were obtained through the training.

The demonstration of a skill which has been learned is often the desired outcome of innovative projects. This applies particularly to teacher training projects where the interest is not so much in knowledge about something, but rather in the ability of teachers to apply obtained knowledge in their classrooms. The recent emphasis placed on performance-based teacher education has highlighted the importance of this type of evaluation as well as the difficulty of conducting it. Certain kinds of skills can be demonstrated through the planning of an activity, the development of a test instrument, the summarizing of data, and so forth. However, certain teaching behaviors can be demonstrated only in the classroom under normal conditions. These kinds of behaviors require observational analysis which is much more costly and sometimes unreliable.

The evaluator is not encouraged to shy away from observational analysis as a type of evaluation technique. Quite to the contrary, the attempt should be made to measure these outcomes in the classroom if that is the desired goal of the project. However, the evaluator should be aware of the difficulty in obtaining accurate, reliable data and of the time consuming nature of obtaining these measures.

Measuring Attitudes

Many projects have as a secondary goal the improvement of attitudes of the target population toward themselves, toward the schools, the community, or the activity in which they are participating. The Questa instruments described below are an example of instruments designed to assess change in attitudes.

> Questa I, the questionnaire for new students, is administered at the beginning of high school. This instrument gathers attitudinal, biographical, demographic, and socioeconomic information and is designed to discover a student's attitudes toward himself, his peers, his previous school, and his new school, his hopes, fears, and aspirations. Questa II, the questionnaire for students, teachers, and administrators, is administered to students and adults familiar with the school. From this instrument the school gains information about the degree to which students, faculty members, and administrators are satisfied with various parts of the school and with student development, about the nature and values of the school's subgroups, and about sources of tension and dissatisfaction. By comparing certain sections of both instruments, the school can measure its impact upon the student's attitudes and values. Questa is designed to assess the school, not individuals, so it is

completed without any identification of individuals, and the results are tabulated and reported for groups only. (Hainsworth and Price, 1976)

While the Murray State instrument is very general, the Oklahoma project has employed a very targeted attitude measurement instrument which requires children to indicate their attitudes about themselves (Smith, et al., 1976). A sample of those items appear in Table 5.

Table 5

Oklahoma Children's Self-Esteem Inventory

Oklahoma City Public Schools

Name_____ School_____

Teacher_____ Grade_____ Date_____

Sex_____ Age_____ Race_____

INSTRUCTIONS: If the statement describes how you usually feel, put a check (✓) in the column "LIKE ME." If the statement does not describe how you usually feel, put a check (✓) in the column "UNLIKE ME." There are no right answers. Words or phrases in parentheses add meaning to the statement.

		LIKE ME	UNLIKE ME
1.	I spend a lot of time daydreaming.	____	____
2.	I'm pretty sure of myself.	____	____
3.	I would rather be myself than anyone else.	____	____
4.	I'm easy to like.	____	____
5.	I enjoy talking in front of the class.	____	____
6.	I wish I were younger.	____	____
7.	There are many things about myself that I would change if I could.	____	____
8.	I can make up my mind without too much trouble.	____	____
9.	I'm a lot of fun to be with.	____	____
10.	I'm happy with (proud of) my school work.	____	____
11.	Someone usually has to tell me what to do.	____	____
12.	I can adjust to (get used to) new things easily.	____	____
13.	I seldom do things that I am sorry for later.	____	____

		LIKE ME	UNLIKE ME
14.	I have many friends my own age.	____	____
15.	I do the best work that I can in class.	____	____
16.	I don't give in easily when I think I'm right.	____	____
17.	I can take care of myself.	____	____
18.	I'm usually happy.	____	____
19.	I would rather play with children younger than I am.	____	____
20.	I don't like to be called on in class.	____	____
21.	I have reasons for the things that I do.	____	____
22.	Things are all mixed up in my life.	____	____
23.	I can make up my mind and stick to it.	____	____
24.	Kids like my ideas.	____	____
25.	I'm not doing as well in school as I'd like.	____	____
26.	I really like being a boy (or girl).	____	____
27.	I'm not ashamed of what I am.	____	____
28.	I like the way I look.	____	____
29.	I like being with other people.	____	____
30.	I seldom feel upset (uneasy) in school.	____	____
31.	If I have something to say, I say it.	____	____
32.	I don't care what happens to me.	____	____
33.	I think I'm doing O.K.	____	____
34.	Kids pick on me.	____	____
35.	My teacher likes me.	____	____
36.	I really get upset when I'm fussed at (scolded).	____	____
37.	Things usually don't bother (upset) me for very long.	____	____
38.	I can be trusted.	____	____
39.	Other people are liked better than I am.	____	____
40.	My school work makes me feel discouraged (hopeless).	____	____

A different type of instrument has been developed for use in the Michigan State project (Byers, 1976). First, this instrument, which appears in Table 6, can be used as a needs assessment instrument, i.e., the teachers can respond to the instrument at the beginning of the project to identify areas in which they need additional training. The instrument can be used again at the end of the project to determine teachers' perceived increases in their own abilities which are listed on the form.

Table 6

MSU Reading Skills Proficiency Form

1. Following is a list of skills/tasks for the teaching of reading. Given a scale of 1-5 where 5 represents proficient in the skill and 1 represents not proficient, where would you place **your ability** to apply each task to your class?

	Not Proficient 1	2	3	4	Proficient 5
a. selecting appropriate objectives					
b. understanding non-instructional factors					
c. diagnostic skills					
d. transfer of skills					
e. develop instructional strategies for word identification for comprehension					
f. knowledge of reading process					
g. selection of commercial readers					
h. modifying commercial reading material to needs of the students					
i. get students to work independently					
j. assess students' progress					
k. analyze specific reading skills					
l. instruction systematic					

2. Overall, how would you assess your ability as a reading teacher?

Incompetent 1	2	3	4	Competent 5

All of these attitude forms provide what may be considered soft data. They represent the reported feelings and attitudes of the target population about their school and themselves. While these self-report forms are often quite reliable and norms can be easily developed, there is always a question of their validity. It is recognized that participants feel a certain amount of social pressure to respond in a positive and constructive way to these instruments. In addition, the items on such instruments are often so global and general that it is very difficult for the respondent to know exactly to what he is responding and more importantly for the evaluator to know if the project has in fact influenced the responses.

Attitude assessment instruments certainly can be a valuable asset in the evaluation of a project's impact. They may be critical if the goals of the project are directed towards attitude change. Therefore, it is extremely important for the evaluator to examine each and every item on these instruments to be assured that (1) the item is specific enough that responses to it will directly reflect the processes employed on the project, and (2) there is no reason to believe that the project itself could change a person's attitude with regard to specific questions. An alternative or supplement to attitude measures is the use of other behavioral indicators which are discussed below.

Alternative Behavioral Indicators

When attitude change is a major component of a project, the evaluator is encouraged to consider actual behavioral change that may be a better indicator of attitudinal change than simple paper and pencil responses to a questionnaire. For example, if a project goal were to improve a student's attitudes toward school, why not look at such indirect or unobtrusive indicators as attendance, completion of assignments, or books taken out of the library, rather than simply asking the student whether he likes to come to school? Indicators such as school attendance or a reduction in the number of windows which have been broken in the school are both extremely reliable forms of data and they are data which decision makers can readily understand and appreciate. These are indicators of the actual performance of the learner with regard to a particular activity rather than of what may be simply a socially acceptable response on a questionnaire.

A similar approach can be used with community surveys which are intended to assess interest in school programs. Surveys can only ask how the person feels about the school, but such indices as their attendance at PTA meetings, their participation on special school committees, their attendance at athletic events, or their purchase of items sold by school groups reflect the community's attitudes about the school. These items are not necessarily perfect indicators of attitudes, but they do represent concrete behavior by the respondent with regard to the activities in question. Attitudes may be inferred from these performance observations.

Summary

The major purpose of this chapter has been to describe a wide range of assessment instruments and to caution the evaluator to be judicious in the selection and/or development of just those instruments which are directly

related to the objectives of the project. Examples of instruments which were used to assess cognitive and attitudinal outcomes were presented. It was noted that it is often necessary to directly observe behavior changes in the classroom or to use unobtrusive measures of changes in behavior.

CHAPTER VI

PROCESS EVALUATION

After the project evaluator has developed an impact evaluation design and selected or developed required instruments to be used for the design, the task is not over. In fact, the major role of the evaluator is only starting as the development of the process evaluation plan for the project is begun. Process evaluation may be considered to be the collection of data and information to be used to improve the quality of the project and to document the major decisions made during the implementation of the project. This definition implies that process evaluation is conducted from the beginning of the project to the end. It includes the analysis of the documentation of project goals and relevant activities, the collection of data and information from students to improve the effectiveness of treatments, and the documentation of decisions which are made relative to the project.

In this chapter, examples of methods which can be used to conduct process evaluation both for the overall project and for specific student or teacher activities within the project will be considered. Also, a discussion of the kinds of information systems which may be required to process all the data generated through evaluation activities will be included.

There are essentially two types of data collected in the process evaluation phase. The first is a general overall type of data which provides information to the staff personnel and project director concerning the progress of the project. Such data reflects the program decisions made during the project and the changes, if any, due to these decisions.

The second type of data is subordinate to the first and is one which has been referred to in an earlier chapter as formative evaluation data. The term formative evaluation infers that this is a process which is used to evaluate specific instructional materials and activities. It is the type of evaluation which instructional materials, workshops, and other special instruction undergo prior to any summative evaluation. The purpose of formative evaluation is essentially the same as that of process evaluation, which is to collect data, facilitate decision making to improve the instruction and assess the consequences of those decisions during the lifetime of the project. Formative evaluation is clearly focused on specific, tangible products and activities which are conducted in conjunction with the target population.

Instructional Improvement

Any project involved in producing instructional materials should follow a systematic materials design process which involves testing these materials in their early stages with a small number of students to determine the effectiveness of the materials. This trial data is used to revise materials for improved effectiveness before they are implemented with a larger number of students.

Similarly, it is not unusual for projects involved in teacher training activities to conduct numerous workshops. Formative evaluation data can be collected at each training session, either through the direct assessment of

teachers' performance on cognitive or skill instruments, or through more general evaluation instruments. These instruments should be designed to focus on the specific outcomes for each workshop and to measure the extent to which the participants feel that the workshop goals were achieved. An example of a workshop evaluation form from the Oklahoma project appears in Table 7. (Smith, et al., 1976)

Table 7

Moon Middle School Workshop Evaluation Questionnaire

Name_____ Teaching Assignment_____

Highest Degree Held_____ Year Received_____ Years of Experience_____

1. Of the following sessions, check in the left hand column those who you feel were not appropriate to your individual needs at this time. In the right hand column, rate the degree to which you feel the session met your needs.

	high degree			low degree
___General Sessions (Monday)	1	2	3	4
___Duties and Procedures	1	2	3	4
___Classroom Management	1	2	3	4
___Learning Options	1	2	3	4
___Testing for Individual Qualities	1	2	3	4
___Individualized Instruction/Team Teaching	1	2	3	4
___Positive School Attitudes	1	2	3	4
___Departmental Meetings (Thurs. & Fri.)	1	2	3	4

2. Of the following sessions, check in the left hand column those in which you feel that group processes were employed. In the right hand column, rate the degree to which you feel group processes were employed.

___General Sessions (Monday)	1	2	3	4
___Duties and Procedures	1	2	3	4
___Classroom Management	1	2	3	4
___Learning Options	1	2	3	4
___Testing for Individual Qualities	1	2	3	4
___Individualized Instruction/Team Teaching	1	2	3	4
___Positive School Attitudes	1	2	3	4
___Departmental Meetings (Thurs. & Fri.)	1	2	3	4

	high degree			low degree
3. Of the following sessions, check in the left hand column those in which you feel that your department goals were formulated and stated. In the right hand column, rate the degree to which goal statements were articulated.				
___General Sessions (Monday)	1	2	3	4
___Duties and Procedures	1	2	3	4
___Classroom Management	1	2	3	4
___Learning Options	1	2	3	4
___Testing for Individual Qualities	1	2	3	4
___Individualization of Instruction/Team Teaching	1	2	3	4
___Positive School Attitudes	1	2	3	4
___Department Meetings (Thurs. & Fri.)	1	2	3	4
4. The workshop purposes were clear to me.	1	2	3	4
5. Adequate time was allocated for each session.	1	2	3	4
6. Facilitators were well prepared and enacted their roles competently.	1	2	3	4

7. My overall impressions of the session of the workshop are:

8. Aspects of the inservice that were most valuable to me are:

9. Aspects of this inservice which I feel were least valuable are:

10. In what was was this inservice practical in terms of your being able to use what was accomplished this week during the school year?

11. My suggestions for our next inservice are:

The frequent testing of pupils can also serve as feedback in terms of the effectiveness of particular teacher skills which are being implemented in the classroom. For example, the Glassboro-Camden charts used daily for pupils also serve as daily assessments of teachers' performances on the project's skill objectives and facilitates their improvement in the use of these skills. (Brent, et al, 1976)

The second purpose for conducting process evaluation is to document major decisions and activities which take place during the project. This documentation is an invaluable source of information for other educators

Table 8
Program Planning Form
Target Audience_____

Place an identified goal in the goal column in the far left of the page, and then elaborate on the goal description [intended change and decisions]. Given this information, identify for each goal: [1] Planned activities and their sequence of events, [2] Persons involved in planning and implementation, [3] Assessment plans and instrumentation by events, [4] Target dates for activities, and [5] Persons who should receive evaluation reports and activity documentation.

One goal may require several planning pages. The completion of this form for each goal will require several planning pages. The completion of this form for each goal will require collaboration and planning by administrators, instructors, and evaluators from all participating organizations.

Project Goal Statement	Intended Change	Intended Decision	Planned Activity and Sequence of Events	Persons Involved in Planning and Implementing by Event	Assessment Plan by Event	Target Dates of Planning, Administration and Evaluation	Persons Who Should Receive Evaluation Report

60

who attempt to use the products and innovations from a project. It is critical to know, for example, whether teachers were self-selected for various instructional activities, or whether they were assigned to those activities by a principal. This procedural difference may cause very different outcomes with the same materials. It is this type of information which the potential user must know to determine what decisions were made and the consequences of those decisions. A future user of the project materials and procedures may or may not wish to make the same type of decisions, even though a decision to use the materials has been made.

The use of process evaluation to provide management information to monitor and change a project midstream if necessary, is relatively new. Many project personnel will be accustomed to continuous data collection during the project. It is critical that, as early in the project as possible, all personnel be aware of the need for and the uses of process evaluation data. If this is not done, significant problems in communication can occur which will stifle the effects of the evaluation team. Note the following comments below from the Stanford project.

> From the inception of our Evaluation Unit, we intended to conduct a continuous formative evaluation, providing feedback for project improvement to various aspects of the project. However, we have repeatedly experienced the problem of not being regarded as a resource whose role is to do this. At Hoover we are regarded with suspicion. At Stanford, the two faculty members of the Evaluation Unit also serve in the Math Work/Study Team which may be perceived as the more important role. The two student members of the evaluation unit experience difficulty at times in offering advice or pointing out problems to peers and superiors.
>
> Fear that our feedback might be regarded as "tale-bearing" often leads us to discuss problems only among ourselves, which is not having the effect of solving the problem. In addition, unclear lines of authority and complicated communication channels make it difficult to know what to say to whom in order to have a particular intended effect, so we hold our peace. These factors have lead us to de-emphasize the formative aspect of the evaluation and concentrate on the summative both because that seems to be what is expected of us, and we find it difficult to overcome the considerable obstacles to performing an effective formative evaluation. (Brent, et al. 1976)

This quote from the Stanford project emphasizes the need for early involvement of project personnel in the design of the process evaluation. It is critical that the rationale for the use of process evaluation information be clearly understood by all participants. This understanding should reduce the anxiety that may be caused by the constant observation and recording of project activities, especially those which occur in the schools.

Another type of documentation is illustrated by the San Jose Project. In

this example the weekly log of events indicates the activities and the people who are involved. Some of the events require evaluation and this data is stored in an information system. This example clearly indicates a close relationship between project documentation and project management as indicated by Morine-Dershimer, et al., 1976.

Week of October 13-17

Classroom Work

Tues. 9:30-10:00 Bi-lingual Presentation in Dan Crowley's room. (Dan relieved for interview with Greta)

12:55-1:30 Bi-lingual Presentation in Terry Clay's room. (Terry relieved for interview with Mike)

Wed. 1:40 Assisted Karen Sorensen in testing program (Edna).

Thurs. 1:00-2:40 Assisted Floyd Piper in testing program.

Classroom Observation

Thurs. & Fri.	CASES	STUDY
	Rose —	Pat Hanzad Karen Sorensen
	Lupe —	Dan Crowley Pat Hayes
	Katy —	Pat Hanzad Karen Sorensen
	Manuel —	Floyd Piper

Community Component

Mon. 7:00 P.M. Parent Study Group — Lupe, Manuel, Rose, Edna (Miguel)

Thurs. 7:30 P.M. Open House P.T.A. Meeting

Other

Wed. & Thurs. Noon Recreation Program
Indoor: Dance and Movement
Outdoor: Soccer

The benefit of a log is that it indicates the type of training which was provided, the amount of instruction target groups received, and the number and types of special meetings and activities which were required to implement the project. This information can be used by the project director to verify project activities and to facilitate project decision-making. In addition, it can be shared with educators from other locations to enhance the probability of the exportability of project findings.

In this chapter we have emphasized the importance of collecting data and information while the project is under way to provide feedback to the instructional designers and the project director, as well as others responsible for the development and assessment of various components of the project. These data can be used to facilitate project decision-making and to document the techniques and procedures employed to enhance project exportability. While there are certain problems which may arise during this type of evaluation, it is critical that all project personnel understand the intent of and the schedule for all process evaluation activities. Otherwise, the lack of communication for effective data collection or cooperation among personnel may cause importance information to be lost.

Information Systems

It has been indicated that the role of the project evaluator includes not only the design and collection of impact evaluation data, but also the data required for process evaluation. This implies that an information system must be available in order to smoothly and effectively store, retrieve, and analyze the volumes of data collected.

Such systems should be designed as soon as possible after the initiation of the project to provide a clear understanding of how the data will be collected, stored, and retrieved. Without such a system, the project could quite readily find itself in chaos—flooded with data and having no idea either why it was collected or how it was to be analyzed.

There are several approaches to establishing an information system. One is to adopt or modify an already existing data system to meet a project's specific needs. For example, a number of projects operating in school districts have access to student information data bases which are owned and operated by the school systems. Such data bases can be invaluable for determining academic growth, biographical information, and the prior success of students in the school system. To illustrate this, the Michigan State project, which has been working with the Lansing School District, has been able to use the extensive Lansing data for the students included in their project.

> This report outlines the contents of the data base that has been created as part of the evaluation of the 10th Cycle Teacher Corps. Although the Lansing School District maintains records for all its elementary school children, only eight elementary schools were selected for inclusion in this data base. The criterion for selection of the schools was that they had been involved in the activities of the Eighth Cycle Teacher Corps. Consistent with this criterion, the following schools were selected: Allen Street, Everett, Gier Park, Gunnisonville, Holmes, Wainwright, Wexford and Willow
>
> The Lansing School District has been maintaining achievement records on its students since 1971. A continuing file of data has been created by LSD for each student in the schools since May of 1971. Therefore, there is longitudinal data available for the children currently in the eight elementary schools composing the Teacher Corps Data Base. (Byers, 1976)

While it is very efficient to use existing data systems, they usually do not include all the information desired by a project staff, and it is usually difficult to either modify or add data to existing records because of their intended purpose. Therefore, it is often necessary to create a new information system for the project.

The following pages contain a check list which has been adapted from the major components of the information system which has been designed for the FSU project (Carey, 1976). Note that the steps correspond with many of the suggestions which have been made for conducting a project's total process evaluation. The chart basically emphasizes the need for identification of who is doing what, when, where and why. If such a system is employed, then all instruments and data could be clearly labeled and stored appropriately. There should be no question as to why it was collected, how it would be analyzed to provide feedback to the project staff, or how to describe the progress of the project.

Checklist for Information Management
System for Assessment Within the FSU/FAMU — Leon County
Teacher Corps Project

1. Describe projection rationale from proposal.
   a. Identify purpose of project
   b. Identify goals and objectives
   c. Identify needs for projects
   d. Identify activities
   e. Identify constraints
2. Verify purpose, needs, goals, activities, and constraints with steering committee.
3. Describe information needs of the project.
   a. Describe context evaluation decisions which are needed
   b. Describe input evaluation decisions which are needed
   c. Describe process evaluation decisions which are needed
   d. Describe product evaluation decisions which are needed
4. Describe assessment process.
   a. Identify personnel required
   b. Describe assessment facilities needed
   c. Describe materials and procedures for each test
   d. Describe procedures for delivery tests and times for administration
5. Describe scoring procedures.
   a. Identify scales, weights or other scoring instructions
   b. Identify scoring methods
6. Design data storage system.
   a. Design and document data file for each instrument
   b. Design and document data file for each individual

7. Describe data analysis procedure.
   a. Identify programs to be used to interpret each instrument
8. Schedule assessment activities.
   a. Identify exact testing dates, instruments and sites
   b. Identify data and time for delivery and collection of instruments
   c. Identify training time and date for personnel
   d. Identify date for delivery and collection of instruments for scoring
9. Train assessment administrators.
10. Conduct assessment.
11. Prepare report of results.
    a. Design display format for interim and final reports
12. Identify all users at all levels for information available in system.
13. Disseminate information.

Perhaps the most critical decision regarding information systems is whether such a system should be computerized. Often there is considerable pressure to take advantage of the power of modern computers, to establish the entire data base on a computer, and to have the computer analyze data for the project. When sufficient funds, personnel, and equipment are available, there is no question that this is an efficient and effective approach; however, experience has demonstrated that almost invariably the time and effort required to build data records and develop programs to store and retrieve data are underestimated.

Numerous books have been written about how to develop computerized information systems, and no attempt will be made to present that information here. However, the project director and evaluator should be aware of the advantages and disadvantages of these systems and perhaps should begin with a very well designed description of the total information needs of the project and the data which will be collected and stored after such a system has been designed. It then is possible to identify subcomponents of the data which might lend themselves to easy computerization and analysis, and likewise to identify those components which can better be handled with a manual system. The question which should always be asked with regard to any particular data element in the system is "Why is this information being collected?" If a substantial answer is not forthcoming, then perhaps that element should be removed from the system. In the long run, it is more valuable to have a few sets of valid, reliable data on the process and outcomes of the project than to be overwhelmed with an entire data bank of information which cannot be accessed or analyzed in a meaningful way.

Summary

The term "process evaluation" has been used broadly in this chapter to describe several evaluation activities which typically occur prior to the impact evaluation. One importance step is the formative evaluation and revision of the instructional materials and procedures prior to their use in the classroom. It was also stressed that the evaluator can enhance the probability that the impact evaluation results will transfer to other locations by carefully documenting project activities and procedures. This information can also be used by the project director to more effectively manage the project. Process evaluation activities result in the generation of a great deal of information. Therefore, a well designed, but not necessarily computerized, project information system is required.

CHAPTER VII

REPORTING PROCESS AND IMPACT EVALUATION OUTCOMES

An evaluation study is only as good as the document which reports the results of that study. It is the evaluator's obligation to develop a thorough and complete report both of the activities which took place during the project and the impact which the project had on its target population. The evaluator's obligation in the report is not only to faithfully represent the happenings of the project, but also to meet the information needs of the audience or audiences to which the report is addressed.

It is not uncommon to find an equivalent report which appears to have been written by one evaluator for the consumption of another evaluator. Often these reports contain jargon, vocabulary, and technical procedures which can only be understood by another highly trained evaluator. In addition, such reports include numerous tables of data and results, but very little interpretation of the results.

The evaluator must be aware that most readers of evaluation reports are not professional evaluators. More typically they will be educational administrators, project sponsors, curriculum supervisors or university faculty members. The advice often given to dissertation writers to write for an informed educational audience which does not have expertise in their particular area would seem to apply quite well to the evaluator. The evaluator should not attempt to write everything that happened on a project in the report, but rather should include those things which are important and significant to the understanding of the project and its outcomes.

Report Formats

Certainly there is no common format that can be followed to report the findings of all project evaluations; however, there are a number of areas which the evaluator should include when reporting project outcomes.

The first area to be considered in an evaluation report is the background of the project. It is important to indicate the type of problem or problems which resulted in the initiation of the project and to list the specific goals and objectives which were to be achieved by the project.

The second major area of a report should deal with the development process. This section should rely heavily on process evaluation data which was collected during the project. The reader should be informed of activities associated with the development of the intervention or treatment for its eventual use with a particular target population. It should be indicated how particular materials were selected or developed and how a particular training program was designed, formatively tried out, and revised if necessary.

Third, an explicit description of the evaluation design employed in the study should be made. It should include a complete description of the

participants as well as the treatment or intervention provided to them. Consideration should be given to such questions as: What was the nature of the treatment? When was it administered? How long was the treatment? And who administered it? Any special circumstances which surrounded the implementation of the treatment also should be included in the report.

Fourth, project impact data should be presented. The most critical feature of this section is to relate impact data directly to the stated goals and objectives of the project so the reader may determine what was to be achieved and whether it was achieved. If an experimental or quasi-experimental design has been employed, the design should be clearly identified. Tables of means, standard deviations, and the results of statistical test results should be reported as well as a brief interpretation of the statistical test results.

If the evaluation design is composed of a number of criterion measures such as the percentage of persons who achieved a certain level of performance, then each measure, the related objective, the mean, and the standard deviation of performance with regard to that measure should be described.

Displaying Data

The evaluator is encouraged to use graphic forms of data presentation whenever it is feasible to do so. It is easier for the eye to examine a bar graph which displays the mean performance data from a number of groups than it is to interpret the same data in tabular form. If performance repeatedly has been measured over a period of time, a graph should be made to display the changes in behavior which have occurred. Try to avoid presenting repetitive tables of data which you would not be interested in reading or capable of interpreting yourself.

Data from various attitude measures present a different type of problem for the evaluator. Perhaps the most meaningful approach for presenting such data appears in Table 9 which was excerpted from the Oklahoma Report. (Smith, et al., 1976)

In this type of table, the reader can see the exact format of the item and the percent of the population responding to each of the various alternatives. If two groups were to be compared in terms of their responses to such a questionnaire, each of the columns appearing on the chart in the example could be subdivided into Group A and Group B and the percent of each group's responses could be presented side by side for comparison purposes.

It is sometimes advisable to simply cluster responses to such questionnaire items into positive, neutral and negative responses and to determine the number and percent of responses which fall into these three categories.

The evaluator is faced with a different type of problem when open-ended responses are solicited from participants with regard to a particular activity. It is advisable to categorize the responses and tally the frequency of the response which falls in each category. Such data can be presented first in a summarized data table which displays the frequency and percentage of respondents indicating a particular point-of-view in their free responses. Second, selected samples can be inserted to help the reader gain a general understanding of the types of responses which were obtained.

Table 9

Oklahoma Teacher Attitude Data Summary

TEACHING DIFFERENT PUPILS*

DIRECTIONS: Read each statement below and decide how you feel about it. There are no right or wrong answers; your immediate reaction to the statement is desired. If you strongly agree, circle SA on the answer sheet provided; if you agree, circle A; if you are undecided or uncertain, circle U; if you desagree, circle D; and if you strongly disagree, circle SD.

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	No Response
1. Children without clean bodies and clothes should remain in school.	34%	40%	4%	10%	10%	0%
2. A child who uses obscene language should be severely punished.	2	19	17	36	25	0
3. Children who continually defy the teacher need extra help and interest from her.	14	59	14	6	0	4
4. Pupils who come from lower-income homes are quite agressive. They will need active participation in learning activities.	8	31	17	36	6	0
5. Children who are constant failures need to meet success to become interested in school.	55	42	0	0	2	0
6. Parents of children from lower class homes are not interested in education.	0	12	10	34	42	0
7. Children from lower class homes feel they are not accepted in school.	4	12	31	40	10	0
8. Culturally deprived children dislike school more often than they like it.	6	29	19	27	17	0
9. Children from culturally deprived homes respond to learning experiences with a game format due to their love of action.	4	31	29	27	6	0
10. All teaching techniques used with middle and upper class children are successful with children from the lower class.	0	4	14	53	27	0
11. Frequent opportunities for physical action, such as exercises, active games, and movement about the classroom are necessary for culturally deprived children.	6	40	21	27	4	0
12. Children from deprived areas should share with the teacher the responsibility of establishing rules for the classroom.	23	53	6	12	4	0

*This instrument was developed by Dorothy J. Ekeel, Pennsylvania State University, 1966.

A sample of this approach appears in Table 10. (Brent, et al., 1976)

Table 10

Glassboro Teacher Attitude Report

Public Schools
Camden, New Jersey
Forest Hill Elementary School

One of the primary values of Precision Teaching is, in my opinion, the daily feedback concerning a child's progress or lack of it on a given math objective. Previously, feedback may have been obtained on a more erratic basis — every other day, once a week, etc. Using the Precision Teaching technique of plotting scores on a daily basis, the teacher has a visual record of a child's acceleration or deceleration. After an aim (goal) has been determined, it can be predicted with a large degree of accuracy how long it will take a child to reach the aim set for him. The plotting of these points also helps a teacher to decide whether or not to move a child to a new objective, reinforce the skill being worked on, or reteach a particular objective.

The children have enjoyed the one minute timings working against time and themselves. By looking at the six cycle chart, a child can see how he or or she is progressing. The child has a specific aim to strive for and he can compare where he is in relationship to the aim set for him.

By returning the one minute timing sheets to the children, the children can see what errors they made and which facts or problems need to be improved.

Originally, the entire class started on the same practice sheet. Very quickly, the varied learning rates of the children became evident and groups of children have been moved to sheets that best fit their needs. Since the teaching goal is individualization, the stigma of the slow learner whose rate of learning is quite different from that of the average or better student will be removed since the child will be working at the level suited for him — not the class.

Ellen Griffith
Fourth Grade Teacher

Discussing Evaluation Outcomes

In a typical research project, the investigator summarizes research findings in the discussion section and then interprets those findings relative to the theory or problem which resulted in the initiation of the project. Future research which might be conducted as a result of these findings is

then discussed. The discussion section of an evaluation report should include many of these same points. For example, the evaluator should quickly summarize goals and objectives of the project and the extent to which the impact data indicate these have been achieved. Any impact which the implementation process of the particular project had on the results can then be discussed. Certain changes and decisions made during the project could be responsible for the achievement or nonachievement of particular project goals.

It is important to note that the evaluator has the opportunity, if not the obligation, to discuss observations about the project results which cannot be substantiated by data. This type discussion should be clearly identified as non-data-based sets of observations but ones which seem to the evaluator to be contributing factors to the project outcomes.

The final component of the discussion could be recommendations relative to future implementations of the project materials or procedures. These recommendations could be based upon both the process and the impact evaluation data as well as the consensus of experienced project personnel. The intent of this section is to provide prospective users with the greatest amount of information possible to increase the probability of their success with particular project materials and procedures.

It is quite appropriate to include, with an evaluation report, copies of all the data gathering instruments which were used in the study as well as detailed data on particular instruments which may be of interest to the reader. These documents should appear in the appendix of the report.

Writing for Different Audiences

The report format which has been discussed in this chapter includes the common components found in almost any evaluation report. Particular agencies may require details on particular topics beyond those which have been discussed above, and some components included here may be completely omitted from the required agency reports. However, this format represents a relatively general approach to the reporting of evaluation data.

Several suggestions can be made relative to additional types of reports which may be necessary for different target audiences. For example, if an evaluation report has become lengthy, i.e., 30 pages or more, the evaluator may want to develop an executive summary which would appear as the first two pages of the report. An executive summary is intended to convey quickly and clearly the nature of the problem, the goals and objectives of the project, the treatments which have been administered, and the findings of the impact of the interventions. The reader of an executive summary should be able to understand in a general way the specifics of the project which will appear on succeeding pages of the report.

The evaluator also should be sensitive to the need for special descriptions of project findings for other audiences. If a report were to be prepared for distribution to parents whose children participated in a project, the general evaluation report might be significantly modified for this use. For example, the detailed description of the preparation of project activities and implementation of the procedures and programs may be briefly summarized, while the overall problem and the impact obtained are given much greater

prominence in the report. In addition, technical terms should be explained in greater detail or avoided altogether in the report. Similar types of adjustments could be made for other special groups.

As a final comment, it should be noted that there is usually an inverse relationship between the size of the report and the probability that that report will be read. The evaluator is thus caught in the dilemma of attempting to present a complete and thorough presentation of the project and its impact, and the likelihood that a thorough, detailed report is less likely to be read. Thus, the evaluator must sometimes compromise between these two extremes in an attempt to present the best possible report in the smallest number of words. Whatever the compromise, the report should be written in a clear, lucid manner and use an interesting and informative style.

Summary

In this chapter, the necessity for clear, precise and targeted reporting of project outcomes has been stressed. Such a report should include the background, goals and objectives of the project. The procedures used to develop project materials and procedures should be presented, as well as a clear description of the evaluation design and the dependent variables or indicators of project success. Care should be given to effectively display the project impact data in such a way that it can quickly and easily be understood by the reader. Effective discussion of the results can help to further clarify the meaning of the results. In preparing the project report, the evaluator should be aware of the interests and capabilities of potential readers, and prepare two or more different reports if necessary.

CHAPTER VIII

PROBLEMS AND ISSUES IN IMPACT EVALUATION

In preceeding chapters a number of techniques and procedures has been discussed which may be helpful to both the evaluator and project director in formulating a plan for assessing the impact of a project and the processes within the project resulting in that impact. At various points, issues have been touched upon that will affect the evaluation. Some of these issues are clear and have apparent solutions. In this chapter major issues which will confront both the evaluator and the project director will be presented. These problems are emphasized not because the solutions are readily available, but rather to sensitize the evaluator and project director to them. The problems will be discussed within three general categories: problems which deal with substantive issues of the evaluation process itself; the general role of the evaluator within the project; and the organization of project communication and its effect on evaluation activities.

Substantive Evaluation Problems

Perhaps the most vital issue faced by an evaluator who attempts to substantiate the impact of a project on a particular target population is the question of the generalizability of the evaluation findings. While the findings might not be questioned relative to the particular time, place, and group of people who were affected by the project, the question remains whether these same effects can be obtained with another population.

Traditionally, experimental designs have been established to determine the probability that outcomes of research projects are attributable to chance, or whether the differences which are obtained as a result of the study are in fact true differences which exist between the group who received the treatment and the group who did not. However, as has been indicated, often it is not possible to employ a true experimental design in an educational project; therefore, the evaluator is automatically relinquishing some degree of generalizability of the evaluation findings.

There are at least two major factors which influence the lack of generalizability of results. The first is the intermingling of effects of various components of the project. Such a situation is described in this excerpt from the San Jose Teacher Corps project.

> Our measurement of the impact of unanticipated activities that have sprung up in response to requests of teachers and parents will not be as complete as our measurement of effects of training. It would be very difficult to parcel out the effects of recreation programs or special interest classes on pupil learning, for example.

> We can collect overall measures of changes in pupil attitudes toward school and toward each other by such simple devices as noting numbers of absences and fights on the playground. Changes of this type cannot be related to a specific project activity, but can indicate an impact of the project as a whole. (Morine-Dershimer, et al., 1976)

The San Jose project is a good example of a large scale treatment which has many components that interact in affecting the same target population. Given such interactive conditions, it is almost impossible to isolate the exact causes of differences observed on pretest/posttest type measures. Various types of correlation and multiple regression techniques can be applied to the data in an effort to determine the relative contributions of the various factors to the observed outcomes. However such tecniques do not identify causes and in some instances may even produce misleading interpretations.

The second confounding factor is the unique nature of people who work on a particular project. It becomes questionable whether these persons could be replicated with another population and whether the outcomes are dependent upon the unique characteristics of the major contributors to the project. This is not an unreasonable question since many projects hire persons with unique and special capabilities to implement an intervention which is related to their particular skills. If another group were to try to implement the same type of project, it would be questionable whether they would have comparable skills and insights to the persons who originally implemented the project.

While most evaluation studies cannot solve these problems, it is possible to describe in detail the processes used to implement the intervention, the skills of personnel available, and the project outcomes. If this information is present, it will be increasingly possible for other educators to replicate the study and produce similar outcomes. It would appear that the most substantial evidence concerning generalizability of results will come through actual replications of project findings. The project evaluator can assist in the achievement of this goal through careful documentation of the instruments and procedures which are used to implement the project.

There are a number of other issues which must also be faced by the evaluator. One of these is the establishment of a realistic evaluation plan. Often the evaluator cannot control those factors believed to be critical to the establishment of a true experimental design. It is clear that the evaluator must bend with circumstances which are present in the project but not compromise the integrity of the evaluation. Realistic control groups must be established in the attempt to work with intact student populations. Various quasi-experimental designs are available for use in these circumstances (see particularly the chaper titled "Designing Summative Studies at the Local Level" by Peter W. Airasian in the book *Evaluation and Education*, edited by W.J. Popham, 1974). In addition, the evaluator should not overlook the possible uses of the criterion-referenced evaluation designs in the absence of the feasibility of other designs.

The evaluator must be sensitive to and prepared for a change in project objectives during the course of the project. Occasionally feedback is received by project personnel which results in the redirection of parts of the project in order to be more responsive to the needs of the target population.

While a well conceived needs assessment prior to the definition of the project might have prevented major changes from occurring, it still must be resolved if it does occur. The evaluator should be prepared to modify an evaluation design and to redesign and implement new evaluation instruments that are responsive to changing goals.

Another issue which may face the evaluator is the assessment of long term goals. Examination of many projects' goals indicates that years and years of testing and observation would be required to adequately test whether they have been achieved. Since each project has a limited life, it is usually not possible to assess long term outcomes. Rather than ignoring these outcomes, the evaluator can identify particular variables that predict future performance. An obvious example of this type measure is the use of course grades in junior high school to predict academic performance in senior high school. The project goal may be directed toward long term learning success as represented by successful graduation from high school. However, since a project might not follow students through their high school years, junior high school grades may be used as a relative indicator of future academic success. Other indicators of a similar nature may be identified and used as predictors of future success.

In order to carry out long term research it is important to create a carefully defined data base which contains information over a number of years for a particular set of students. The Michigan State Teacher Corps project has created a data base which includes scores for groups of students called "cohorts."

> The data base is composed of six separate cohorts of elementary grade students. The first of these cohorts is composed of students who, in May of 1975, were in the sixth grade. When those students graduate from high school, they will be the class of 1981. They have been designated as cohort 1981 (C1981). Those children completing fifth grade in 1975 were designated as cohort 1982 (C1982), the year their class will graduate from high school. Each of the other remaining cohorts were named in a similar manner down to cohort 1986, those children in the first grade in 1975. By spring of 1978 the data base will contain the complete elementary school performance on three cohorts: C1982, C1983, and C1984. Such data will provide an excellent opportunity to study the growth in achievement over the first six years of schooling. (Byers, 1976)

An alternative approach to evaluating long term project goals is to modify them to reflect only those things which can be accomplished within the life of the project. It is not unreasonable for a project to develop long range goals as a source of motivation and direction, but not as specific goals to be measured at the conclusion of the project.

An additional problem which may face the evaluator of a large project is assessing outcomes based upon very small samples from the target population. When a project is focused on student outcomes, the population of students affected is usually large enough that results can be generalized to

similar students. However, when a special intervention strategy is employed with one student at a time or a very small number of students, then the problem becomes more difficult. A similar problem would be encountered in a teacher training program if individualized instructional materials were made available to teachers so they could selectively use these materials according to their interests and abilities. It would be likely that no two teachers would select the exact sequence of modules to study. Therefore, the treatment for each teacher would be different.

Time series analysis, a quasi-experimental design technique described by Campbell and Stanley (1963), can be used when there is only one participant in the impact study and no control group can be established. A time series design requires that several observations or measures be taken prior to the intervention treatment. After the treatment, another series of measurements is taken. The design can be represented as:

$$O_1 \quad O_2 \quad O_3 \quad O_4 \quad x \quad O_5 \quad O_6 \quad O_7 \quad O_8$$

In the diagram, each O represents a separate measure of some type of behavior and X represents the intervention treatment.

This design can be applied when a special treatment is applied to only one teacher or one student. For example, assume that a teacher were having difficulties with a particular student. Observations could be made once a week for four weeks to determine the number of disrupti behaviors exhibited by the child. The teacher could then be given intensive training on the use of behavior modification techniques which would be applied to change the behavior of the child. Observations would be resumed over a number of weeks to determine if the frequency of disruptive behaviors was reduced.

A similar approach could be used to determine if the training of a single teacher had a significant effect on a group of students. The treatment might be some special materials studied by the teacher to improve her instruction in mathematics skills. Students would be tested on several occasions prior to the training of the teacher. Then several additional tests would be administered over a period of two weeks subsequent to the training and use of the techniques.

In both examples described above, the major purpose of the design is to detect changes in behavior subsequent to the administration of a particular treatment. It is critical that a number of observations are taken both prior to and following the treatment to reduce the likelihood that any observed change is due to the co-occurance of some other event. The evaluator should note that causality can not be inferred from this design because there is no control group with which to compare outcomes. However, the multiple measurements of behavior tends to reduce the possibility of a false interpretation of the outcomes.

The data from such a study can easily be plotted on graph paper to depict the pretreatment and posttreatment performance on the dependent variable. Quite often there will be a visually significant effect. However, there are certain problems in applying standard statistical techniques to the data for analysis. Campbell and Stanley (1963) address this problem, and

more recent developments are described by Box and Jenkins (1970) and Glass, Willson, and Gottman (1975).

Certainly other problems than those discussed here will emerge on a project, but those which have been discussed should highlight the types of problems that can and do arise and some possible alternatives which are available to the evaluator.

The Role of the Evaluator

Project staff members are usually aware of the role of a project director, content specialist, media specialist, and perhaps even the evaluation specialist. Most perceptions of evaluators are that they are personnel who design or administer tests to determine whether the project is successful. The role is seen as a behind-the-scenes or external role to the project. The evaluator must actively seek to change these perceptions.

Hopefully, evaluators can convince the project director and other staff personnel that they can be of greater service to the project if they are considered as internal contributing members of the project team. One common reaction to such a role is that the evaluator is not knowledgable about the intervention strategies which are being employed on the project and, therefore, can be of no help in their implementation. It is incumbent upon the evaluator to become familiar with the intervention strategies and the kinds of process evaluation information which will be helpful to project personnel.

Perhaps the most significant step which the evaluator can take in role definition is to provide feedback data to the project director and staff relative to project progress. It is important that these data not imply judgments of wurth concerning the activities but rather that it be descriptive of achievements and nonachievements. It is the responsibility of the project director and staff to use these data to make changes that seem appropriate. The extent to which the evaluator can contribute to the success of others on a project will determine, in part, the extent of his own success.

The External Evaluator

While it has been the thesis of this monograph that the most effective role for the evaluator is as an integral member of the project team, the question can be raised about the objectivity of such an evaluator. The answer to this question has been, for a number of funding agencies, the employment of an external evaluator. This person has no affiliation with the project but rather reports directly to the funding agency.

The major function of the external evaluator is to verify the progress of the project and the findings which have been reported. This is quite a new role, and one which is not yet well defined. Typically the external evaluator is interested in both the process and the impact created by the project. His activities closely resemble those of an auditor who verifies the accuracy of reported data. Thus the external evaluator rarely collects "new raw data" on a project, but rather examines existing data for accuracy.

There are three major advantages to a project to be reviewed by an external evaluator. The first is that the evaluator will substantiate the findings to date and verify them to the funding agency. This adds obvious

credibility to the findings. Of greater importance, however, is the likelihood that the evaluator will identify problems which have gone undetected by project personnel. Through discussions with a variety of staff and users, the external evaluator can gain a unique perspective on the project and provide insight into difficulties. The third advantage of this review is that often the external evaluator can informally suggest alternative solutions which might not otherwise have been considered.

In a very direct sense, the presence of an external evaluator produces the same concerns that formally were felt toward the project evaluator. However, if the project is progressing according to the proposed plan, then the review by the external evaluator can be quite beneficial.

Project Organization

It is not unusual for the organization of school-based innovative projects to become quite complex. Often these projects involve campus-based university professors, external agencies, regional laboratories or consultants, school administrators, teachers, and students. Such projects are usually conceptualized and the proposal developed by a small number of people, while those who will be most affected by the project will have little or nothing to do with either its planning or funding. Disinterest or actual resentment are often the result of this situation.

In order to avoid negative initial reactions from participants, the evaluator is urged to consider a needs assessment process at the beginning of the project, either prior to or immediately after funding, which will involve all the members of the affected groups. This "buying in" will significantly affect their perception of the project and their cooperative participation in it.

Communication

Communication presents another area of concern which is documented here from a Teacher Corps project.

> Channels for communication about aspects of the project are unclear. The project is very complex, and undertakings must be approved at several levels before approval is granted. This can lead to frustration, particularly since time for approval-granting may be very long, and work/study teams meet at most twice monthly. For example, a work/study team may wish to conduct an interest survey among parents. The group may want to coordinate its survey with that of another group whose concerns may be similar, such as the bilingual education and multi-cultural education work/study teams. The Evaluation Unit would have to be consulted about developing and administering the survey, but the survey also would have to be approved by the Hoover administration and the Project Steering Committee. Approval to spend money would have to obtained from the Assistant Director, and allocation of costs for data analysis decided among the involved work/study teams and the evaluation unit. (Berke, 1976)

All communication is certainly not the responsibility of the evaluator. There is no question that the evaluation process will be significantly affected by the quality of the communication within the organization.

The problem of communication is often accompanied by the questioning of authority. With so many different people involved in an innovative project, it is not unusual for the question of who is really in charge to arise. Is it the project director, as indicated in the proposal? Is it the school principal or another school administrator? Or is the periodic consultant who comes in to help plan? Unless there is a clear indication of authority, the role of the evaluator will be hampered. The extent to which these issues can be addressed early in the project will determine the extent to which they can be minimized as problems later on.

Summary

The reader could have the feeling after completing this chapter that the project evaluator has a nearly impossible task and, in one sense, that perception is accurate. The evaluator will face many difficult issues relative to conducting the evaluation as well as problems related to simply establishing a role within the project and functioning within its organizational structure. However, it is hoped that the issues raised in this chapter will alert the project director and evaluator to problems which have occurred in the past and to possible solutions which can be implemented through cognizance of these issues. Plans can be made and steps can be taken to avoid many of these problems if sufficient forethought and concern are addressed to them.

CHAPTER IX

FUTURE TRENDS IN EVALUATION

It has been the intent of this book to suggest a number of procedures and techniques which can be used by a project evaluator to measure the impact of a project. In addition, the role of the project evaluator as an active member of the project team has been emphasized through the importance of process evaluation. If there are to be reputable and exportable results from projects which can be shared with others, it primarily will be because careful process and impact evaluations have been carried out.

It is a strong statement to say that the replicability and exportability of a project depends heavily upon the evaluation process. However, consider the tangible remains of a project after it has been completed. These remains include the report of procedures which were used in the project, any products that were produced or collected by the project staff, and a report of the results obtained using these procedures and products.

The project evaluator is involved with all three of these components. The evaluator is involved in the documentation process as a team member who participates in intervention planning activities, as a member who determines the best possible procedures to assess and evaluate interventions and as the member who continually relates intervention activities to objectives and outcomes.

Teamwork is required for effective project documentation on a large project with multiple objectives and interventions. Personnel involved in planning and providing a particular activity also should produce a report which includes a thorough description of the objectives, the program, and the target audience. They also could provide a brief description of who participated and when the activity occurred. The evaluator then can analyze these reports along with related quantitative data to provide formative and summative information on each activity to staff members as agreed. That information could relate to: need and timeliness; performance and/or attitude change in the target population; compatability with overall goals; compatability with specific objectives; or any other information that could help project members assess their work on a particular activity and assess the progress of the project in general. As this documentation information builds for each activity, evidence concerning the growth and effectiveness of the project is created. This information will prove to be a valuable resource for information required in interim and final reports concerning overall project impact.

It is the role of the evaluator to execute the formative evaluation of any instructional materials which have been developed and to provide authors with information so the materials can be improved.

It is the role of the evaluator to design, conduct, analyze, and report the quantitative results of the impact evaluation. As can be seen from these descriptions, many of the evaluator's activities in process and impact evaluation occur at the same time or are overlapping in time. In addition, they require the continual assistance and cooperation of other team members.

Clearly the role of the evaluator is an important one and one which, when overlooked, results in a project in which appropriate evaluation techniques have been totally absent or inappropriately applied. Only one example needs to be presented to make this point. The University of Oregon Teacher Corps project planned to survey existing performance-based teacher education instructional modules and to select and use in their project those which had been clearly validated for their effectiveness. At the outset, the staff identified 401 available modules; however, they were able to obtain only 225 of those identified. Even then their troubles were not over.

Some of their additional difficulties are indicated below:

> Some of the training packages proved very difficult to understand. We could not figure out how they worked, that is, how the various parts of the training package related to each other, what the sequence of training activities was, whether a coordinator was necessary, the number of hours required, etc. It would have helped greatly, although the cost would be prohibitive, to invite the developers of each package (or their representatives) to visit our project and demonstrate the training process.
>
> Our most difficult problem in Phase 1 was obtaining evaluation reports relating to the materials' effectiveness. These "fugitive" documents seldom are published and instead must be obtained directly from the developer. Also, developers sometimes claim that their materials have been evaluated when what they mean is that the materials were tried out in a small-scale field test in which impressionistic data were collected. It appears that relatively few materials — of the hundreds which have been catalogued — have been subjected to rigorous summative evaluation. (Gall, et al., 1976)

The Oregon project is an example of a thorough attempt to identify innovative instructional materials which had undergone effective formative and summative evaluation. Their findings are a resounding condemnation of the evaluation activities which have taken place on innovative projects to date.

The impossibility of continuing to receive funds from federal agencies without including effective evaluation techniques for a project would seem to be clear. Agencies are currently under pressure to support projects which agree to engage in wise planning, thorough documentation, and evaluation. In essence, the agencies have an investment in the projects they fund. If projects are to continue to be funded, then accountability must increase.

A second and equally important reason for careful and thorough evaluation of innovative projects is the requirement of accountability information when requests are made for continued support of these projects at the local level. The policy for Title III projects within the Elementary and Secondary Education Act has been that at the end of three years, local education agencies were required to begin to support the continuation of the project. This transition would be most difficult without evidence con-

cerning the growth, progress, and effectiveness of the project. It is a political reality that if school boards are to allocate funds for the continuation of innovative projects they should have carefully documented evidence concerning the impact of those projects before committing scarce local funds.

A third and perhaps more appealing reason for engaging in extensive project evaluation is the professional obligation of educators to share the outcomes of research and development efforts. It is clear that evaluation is an extensive process, not just in terms of hiring a person, but also in terms of the materials and supplies that are involved. In addition, extensive time commitments are required of all project staff as well as members of the population who are being affected by the project. Numerous hours are required to complete testing instruments, attitude surveys, and questionnaires, as well as analyzing the documentation of meetings, decisions, and other interactions in the project.

Consider the situation in which a project has not been evaluated and documented. Such a project would essentially involve a group of educators who plan and implement a set of activities with a group of teachers and students. At the conclusion of the activity, the project is finished. Cost analyses of this type project have indicated that perhaps hundreds or even thousands of dollars were spent on the few persons who were affected by the program. Without documentation and evaluation, there is no carry over benefit for students or teachers who did not participate in the project. Such large financial investments in individual teachers and students can hardly be justified by governmental agencies. Therefore, project personnel have the obligation, upon receipt of the project, to evaluate their efforts and to share their findings with others.

It may be asked whether the role of the evaluator will become easier or more difficult in the future. Present trends suggest that the role will become better understood and accepted. It is likely that more and more project personnel will be receptive to the contributions made by evaluators and accept their efforts as an integral part of project activities. In particular, process evaluation techniques will be better understood and accepted in terms of their critical contribution to the guidance of the project. Additionally, formative evaluation will be recognized as a critical component of the materials development process.

It is likely that in the years to come educational agencies will benefit from joint efforts which will benefit all the agencies involved. As these working relationships are developed, it will be easier to organize, conduct, and evaluate projects which involve multiple agencies. It also is likely that more and more evaluations take place, a number of new processes and impact evaluation strategies will be developed and implemented. Many of the unsolved problems and issues which have been discussed in these chapters will in fact be resolved.

TEACHER CORPS PROJECT REFERENCES

All the papers listed below were presented at the Teacher Corps Research Framework Conference in Denver, Colorado, in February, 1976.

Berke, I.P., *The evaluation plan for the Hoover/Stanford Teacher Corps project*. Stanford University/Hoover Junior High School Teacher Corps Project, 1976.

Brent, G., Arnold, M., Axe, G., Brown, J., Goodfellow, F., & Zimmerman, D., *Instructional decisions from precision teaching — putting classroom teaching into focus*. Glassboro State College and Camden City Public Schools Teacher Corps Project, 1976.

Byers, J.L., *A preliminary description of the evaluation plan for tenth cycle Teacher Corps, and description of pupil achievement data base for tenth cycle Teacher Corps*. Michigan State University/Lansing School District Teacher Corps Project, 1976.

Carey, L.M., *Evaluation procedures for monitoring and describing impact in the FSU/FAMU — Leon County Teacher Corps Project*. Florida State University/Florida Agricultural and Mechanical University — Leon County Teacher Corps Project, 1976.

Gall, M.D., Acheson, K.A., Hammond, R., Raffeld, P., & Waugh, R., *Teacher training programs: levels of impact*. University of Oregon/Eugene School District Teacher Corps Project, 1976.

Grodsky, M.A., Breen, T.F., III, Wright, P.F., Jennings, B.L., Applefield, J.M., Childress, R.B., & Lentz, L.P., *The process of educational research: model development. West Virginia College of Graduate Studies Teacher Corps Project, 1976.*

Hainsworth, J.C., & Price, W.O. Jr., *Identifying and maximizing unique talents of children*. Murray State University/Hopkinsville Middle School Teacher Corps Project, 1976.

Holland, J. & Gentry D., *Evaluation research plan for the tenth cycle Teacher Corps Project*. University of Central Arkansas/Little Rock School System Teacher Corps Project, 1976.

Morine-Dershimer, G., Spaulding, R.L., & Dershimer, R.A., *Assessment and documentation of impact in the San Jose Teacher Corps Project*. San Jose State University/Alum Rock Union Elementary School District Teacher Corps Project, 1976.

Smith, J.A., Kennedy, T.C., & Gardner, T.H., *Impact documentation: an overview*. Oklahoma Consortium for Urban Teacher Education Teacher Corps Project, 1976.

GENERAL REFERENCES

Airasian, P.W., *"Designing summative evaluation studies at the local level."* In Popham, W.J. (Ed.) Evaluation in Education. Berkeley, Calif.: McCutchan Publishing Co., 1974, 145-200.

Box, G.E.P. & Jenkins, G.M., *Time Series Analysis: Forecasting and Control*. San Francisco: Holden Day, 1970.

Campbell, D.T. & Stanley, J.C., *Experimental and Quasi-experimental Designs for Research on Teaching*. Chicago: Rand McNally, 1963.

Dodl, N.R., Kibler, R.J., Dick, W., Toomb, J.K. & Rollin, S.A., *The Florida Assessment and Diffusion System Model*. Tallahassee: Teacher Education Projects, Florida State University, 1974.

Glass, G.V., Willson, V.L. & Gottman, J.M., *Design and Analysis of Time-series Experiments*. Boulder, Colorado: Colorado Associated University Press, 1975.

Mager, R.F., *Preparing Instructional Objectives*. Palo Alto, Calif.: Fearon Publishers, 1962.

Scriven, M., *The Methodology of Evaluation*. AERA Monograph Series on Curriculum Evaluation, No. 1 Chicago: Rand McNally, 1967.

Scriven, M., *"Evaluation Perspectives and Procedures."* In Popham, W.J. (Ed.) Evaluation in education. Berkeley, Calif.: McCutchan Publishing Co., 1974, 1-94.

APPENDIX

Teacher Corps Project Summaries

FSU/FAMU — Leon County

Teacher Corps Project

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GOALS OF THE PROJECT

The project has as its research adaptation goal the application of a theoretically derived model for needs assessment and change adoption. The model specifically selected for application is the Florida Assessment and Diffusion System Model (FADS). It was developed in an R&D project at Florida State University by a team of professors representing a variety of disciplines.

The FADS model has been modified for use in a public school setting to assess the information needs of teacher education decision makers and to increase the probability that those decision makers would make appropriate use of research and development findings and products. Success in implementing the model in a public school setting will require interaction and cooperation among all participating members of the community which includes the Florida State Department of Education, FSU, FAMU, the Leon County Teacher Education Center, and Leon County school personnel. Interaction among professional educators at these varying levels should increase the variety of resources available to each institution and improve general educational practices in the community at all levels.

In addition to the major goal of implementing and monitoring the use of the FADS model, there are several other goals for the project. They include:

1. Facilitating the task of identifying priority teacher training and retraining, and delivering necessary solutions.
2. Designing and demonstrating a research-based alternative form of teacher education.
3. Improving classroom instruction in local public schools and teacher education programs.
4. Producing positive changes in community attitudes toward the school and increasing community participation in school-related activities.

TREATMENT INTERVENTION

Treatments include both formal instruction and applied team work in identified task forces. Site-centered and campus-based instruction make up the instructional component. Faculty members from both FSU and FAMU work with teachers and Teacher Corps interns in various workshops and other instructional activities identified as desirable through the needs assessment activities of Riley School teachers and administrators, faculty from FSU and FAMU, personnel from the Leon County Teacher Education Center and support personnel from Teacher Corps.

More specifically, instructional programs through the summer and school year include the following areas: (a) community/social action; (b) interpersonal skills; (c) research consumption; (d) interpreting and using results of diagnostic tests for lesson planning; (e) instructional design, diagnosis, and prescription; (f) needs analysis techniques for the classroom and school; (g) generic classroom teaching skills; (h) knowledge and skills in

various instructional models (Bruner, Taba, Rogers, etc.); (i) curriculum related skills (math, science, etc.); and (j) communication techniques with students, parents, peers, administrators, and community members.

TARGET POPULATION

There are several target populations to be affected through the project. The overall goal of interaction and integration of various members of the Leon County education community has as its target population the Florida State Department of Education, the Colleges of Education at Florida State University and Florida Agricultural and Mechanical University, the Leon County School System, and the Leon County Teacher Education Center.

Riley Elementary School is the school site in which the adapted FADS model is being applied. Interface among the various components of the education community in Tallahassee takes place at the school site.

Specific target audiences for specific goals include: (a) students at Riley School; (b) classroom teachers at Riley School; (c) Teacher Corps interns at Riley School; (d) Teacher Corps staff; (e) Riley School community members; (f) the instructional faculty and administrators of the Colleges of Education of FSU and FAMU, and (g) the Leon County Teacher Education Center.

SUCCESS INDICATORS

Specific success indicators have been identified for each goal and each target population. The types of indicators to be used with each group are summarized here.

Students

Success indicators which have been identified to date to use for assessing Riley School students' growth: class performance, achievement scores, indices of self-concepts, indices of interests, attendance, counselor's observations, and teacher's observations of students' behavior.

Teacher Corps Interns

Success indicators to be used in assessing interns' performance include: course grades, classroom teacher ratings of interns' performance on specified objectives, Teacher Corps staff ratings of interns' performance on specified objectives, a motivation index, performance on generic teaching skills, intern interests, project objectives status, communication interaction patterns, teaching procedures, attendance records, and an "activities initiated and carried through" index.

Riley School Staff

The Riley School staff includes classroom teachers, the counselor and curriculum coordinator, teachers' aides, and school administrators. Indicators of success for inservice activities with this group include: attendance at inservice activities; ideas initiated and carried through as assigned Task Force groups; observations of classroom teaching performance; observations of facilitating behavior for school goals and

projects; voluntary attendance at school activities; participation in Task Group meetings; participation in County inservice activities; participation in courses at FSU and FAMU; and perceptions described through inventories such as interest, motivation, teaching skills, classroom practices, and interaction patterns.

Teacher Corps Staff

The Teacher Corps staff includes: the director, evaluator, research specialist, instructional faculty from FSU and FAMU, the site coordinator, community coordinator, the team leader, interns, and secretaries. These people are charged with varied responsibilities and tasks. Indicators of success among this group include: identified needs of Riley School personnel; solutions from research and development to meet locally identified needs; inservice activities planned and delivered to meet identified needs; ratings by Riley School staff concerning their effectiveness as resource personnel for identified school and community problems; attendance at school functions and activities; facilitation of communication among various levels of educators in the local educational community, documentation and assessment of inservice activities provided at Riley School; documentation and assessment of all Teacher Corps instructional activities at Riley School, in Leon County, and in national Teacher Corps activities; documentation and assessment of ongoing and successful diffusion of programs and activities generated at Riley School through both Leon County inservice programs and the teacher education programs at FSU and FAMU.

Riley School Community Members

Riley School community members include both parents of students in Riley School and other members of the community who do not have children in attendance. Success indicators with this group include: attendance at school sponsored activities; participation in the school volunteer program; responsiveness to school needs and requests; attendance and participation in the Riley School Community Council; and attitude and interest inventories.

Preservice and Inservice Teacher Training Institutions

This group includes the Colleges of Education at FSU and FAMU and the Leon County Teacher Education Center. Indicators of success with this group include: increased interaction among educators among these three groups; joint-planned inservice activities involving all three institutions; evidence of diffusion into instructional programs of activities, programs, and knowledge generated through interaction at Riley School, attendance at planned inservice activities; and rated effectiveness and relevance of inservice activities sponsored by these groups at Riley School.

GLASSBORO-CAMDEN PROJECT

Project Director and Evaluator

Frank Goodfellow, Director
George Brent, Program Development Specialist and Evaluator
Glassboro State College/Camden City Public Schools
Tenth Cycle Teacher Corps Project
Department of Elementary Education
Glassboro State College
Glassboro, New Jersey 08028

Objectives

1. Teachers will be able to apply Precision Teaching in their classrooms.
2. Teachers will be able to teach Precision Teaching to other teachers and parents.
3. Teachers will be able to serve as specialists in self-chosen educational areas.
4. Teachers will be able to advise other teachers in the management and education of children with learning and behavioral problems.

Description of Research Intervention

In keeping with the Tenth Cycle Teacher Corps policy of basing each project on a research strategy, Glassboro State College and the Camden Public Schools have chosen Precision Teaching as the tool for measuring the performance and learning of children they may be affecting. Encompassed in Precision Teaching are strategies for pinpointing performances for continuous measurement, and for a direct measure of learning. Pinpointing performances insures individually defined curriculum goals for the children. Continuous measurement allows learners and teachers to make rapid instructional decisions. The decisions are based on the assessed amount of learning that is occurring for any one pupil. And last, but certainly important, is a series of techniques which allows learning data to be summarized.

As stated above, Precision Teaching offers a means for measuring learning directly. The direct measure of learning enables the project to discover what forms of learning are caused by different types of teaching. The Glassboro-Camden Tenth Cycle Teacher Corps Project is using the results of the learning measures to build the content for teacher training. Teacher trainers are finding firm positions from data-based decisions to share with others. Most important, there is an accounting of how the pupils are growing. When pupils are not learning, it is known to them, to their teachers, and to the inservice trainers immediately.

Selecting Precision Teaching as the Glassboro-Camden research strategy was not by chance. Rather, selection of this research strategy was based on the availability of hard data. These data show distributions of "power" skills for children. These skills have criteria for success and learning measures which allow any learner to know where he or she started and where he or she is daily.

Within the duration of this cycle, the Glassboro-Camden Teacher Corps Project will be able to share:

1. what match objective sequence works best for given pupils;
2. what proficiency levels of performances (frequencies) are best for next level objectives, and
3. what tool skills are critical for all learning.

Description of Target Population

Precision Teaching is being adapted in the Forest Hill School. Forest Hill is located in Camden, New Jersey, and has 16 regular and 6 transitional classrooms involved in the project. Most teachers are using Precision Teaching during mathematics instruction, at present, but will expand to reading during the second year of the project. In addition, the art, gym, science, library, and music specialists are involved within their subject areas.

Description of Success Indicators

Two types of measurement data will be used to evaluate the effectiveness of the adaptation of Precision Teaching. The first is the information displayed by the daily records of Precision Teaching. This information will summarize student learning improvement in each curriculum area, as well as effective teaching procedures and decisions for each student.

The second evaluation measure will compare pre- and posttest scores on standardized tests given the experimental and control group students.

The goal of this Teacher Corps Project is to focus classroom measurement into proper perspective as a decision-making tool to improve teaching effectiveness.

MICHIGAN STATE UNIVERSITY PROJECT

Names of project director and evaluator

Lonnie D. McIntyre, Co-director, Michigan State University
Minnie L. Wheeler, Co-director, Lansing School District
Joe L. Byers, Program Evaluation Specialist, Michigan State University

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DESCRIPTION OF PROJECT GOALS

Tenth Cycle Teacher Corps at the Lansing School District and Michigan State University has as its focus the systematic adaptation of research findings on teacher education. The entire staff of Wainwright Elementary School — a local Lansing school — will be involved in this program along with a team of teacher educators from MSU.

Developmental teams will peruse the research in the following curricular areas: reading, math, multi-cultural education and social-emotional education. A fifth developmental team, Foundations of Teacher Education, will be investigating "What are the needs of society?" as they relate to the four curricular areas previously mentioned. The efforts of the Foundations Developmental team will lead to a seminar in which all members of Tenth Cycle Teacher Corps, including the Curricular Developmental team, will be participants. We feel that participation in this seminar will insure consistent goals as each developmental team attempts to build and adapt new curriculum models based on research findings and societal needs.

The membership of these developmental teams is comprised of preservice teachers, inservice teachers and teacher educators — thus, each team will benefit from the experience of the classroom teacher as well as input from the research efforts of the teacher educators. These developmental teams began to operate during Fall term, 1975. They will continue their developmental efforts throughout the school year with the expectation that curricular adaptations and instruction will be implemented during Winter and Spring terms.

Preservice teachers will receive instruction in all four curricular areas while inservice teachers have the option of receiving instruction in two curricular areas. All instruction will be provided by MSU, and the classes are to be taught at Wainwright School. A special group of seniors called "university interns" will relieve the teachers in order that they may attend classes while at the same time it allows these students to complete their student teaching requirement. Academic credit is available, and it may be applied toward a degree offered at MSU.

Activities during the second year of Tenth Cycle Teacher Corps will be essentially the same as the first year with the exception that the demonstration strategy will be implemented. Our project views the demonstration strategy as one of three possibilities — process, product or teaching. For example, a visitor might wish to learn how a classroom teacher becomes actively involved in curriculum adaptation and revision — a process;

another might wish to see a new math curriculum for grade four based on research and societal needs — a product; still another might wish to see a teacher that has been retained using newly acquired skills based on research and adapted for her fourth grade math class — demonstration teaching. In addition to the training and retraining components, Tenth Cycle Teacher Corps will also provide training for aides and parents in the same four curricular areas.

The Community Based Education Component has three major goals:
- —to orient Teacher Interns to the community;
- —to familiarize the community with the Teacher Corps program;
- —to recruit and develop community groups desiring training in one or all of the four curricular areas offered.

If we are successful in achieving the third goal, i.e., the recruitment of community groups for training and, in turn, are able to provide the training in the curricular areas, then we feel this process will have a very positive impact upon some of the children in Wainwright School. It will also involve those parents in a very direct way with the education of their children.

The Exceptional Child Component will utilize an individualized approach. A MSU faculty member with special education training will focus on one child with a perceived problem and work with the teacher, the interns, the team leader and the clinic professor to build and develop strategies based on current research to ameliorate the problem. Since this project is housed in one school, it will allow more children to receive individualized help from a team of educators while at the same time it provides preservice and inservice teachers with some of the skills for mainstreaming.

Data collection, analysis and evaluation will be under the direction of a team of evaluation specialists from the Lansing School District and Michigan State University. A member from this team will serve on each of the development teams to insure that evaluation activities are performed by trained specialists. Every aspect of Tenth Cycle Teacher Corps is to be evaluated and reports that document successes as well as failures will be made available through the Research Network to other Teacher Corps projects.

Description of Research Intervention

The Michigan State University-Lansing School District Tenth Cycle Teacher Corps project takes its point of departure for its research intervention from the sense of powerlessness that many teachers seem to have in the day to day conduct of their professional lives. When it comes to determining what and how to teach, many others (administrators, school boards, parents, teacher unions, publishers, university professors) seem to have much more control over decision-making than the individual classroom teachers. The staff of the M.S.U.-L.S.D. Teacher Corps program has developed an inservice training program aimed at the amelioration of the feeling of powerlessness. This intervention, if successful, will provide the staff at the target elementary school in the Lansing School District with the technical and intellectual skills to make a wise and just curricular development decision, the political skills to affect a major influence on curricular decisions, and the will and commitment to use these skills.

The sense of powerlessness just averred to springs not only from

psychological, sociological and political constraints placed on teachers and teaching, but in many instances to limitations in the content and knowledge of teachers. Without increased knowledge about subject matter and confidence in their competence of such matters, a program runs the risk of many "educational programs"; i.e., being too abstract. It has been decided to partition instruction into four curricular areas of concern to elementary school teachers and to the national Teacher Corps. These four curricular areas are Reading, Mathematics, Social-Emotional Education and Multi-Cultural Education. If teachers are to learn to overcome the sense of powerlessness, it is important that ready-made inservice programs not be "laid upon them." Therefore, four curriculum development teams were organized during the fall of 1975, one for each of the above-mentioned curricular areas. Each team consisted of several university faculty members whose areas of scholarship centered in the subject matter area. In addition to the teacher educator, each team had a regular faculty member from the target elementary school assigned to participate fully in the development of the inservice instructional objectives and plans which constituted the research intervention of the Tenth Cycle M.S.U.-L.S.D. Teacher Corps Program.

Description of Target Population(s)

a. 20 Inservice teachers at Wainwright Elementary School.
   2 males, 18 females; 1 black, 19 white
b. 4 Teacher Corps Interns
   4 females; 2 blacks, 1 Latin, 1 white
c. 2 Team leaders
   1 black, 1 white
d. 1 Principal
   1 white female
e. Elementary Students
   576; 22% minority (black and Chicano)
   (basically lower middle class — 80% with some working class — 20%)
f. 22 Preservice Students
   2 males, 20 females; 1 black, 21 white
g. 12 Teacher Educators
   5 males, 7 females; 2 black, 10 white
h. 12 Teacher Educators in Training
   2 males, 10 females; 1 black, 1 Chicano, 10 white

Since the major thrust of the M.S.U.-L.S.D. Teacher Corps Program is directed at teacher curricular development and decision-making, it seemed appropriate that the major dependent variables relate to teacher behaviors. Each curricular development team was charged with the construction of a set of evaluation items which would fall into the following three categories: (1) what are teachers' self-perceptions of their curriculum planning skills and their valuing of such skills?; (2) what is their actual knowledge of curricular content and curricular planning skills?; and (3) what is the extent of their use of these skills in their teaching and planning? These three questions flowed from the project's commitment to changing the sense of powerlessness by providing teachers with the technical and intellectual skills to make

curricular decisions, the political skills to influence those decisions, and the commitment to use these skills. The first two of these questions were concretized in a set of four evaluation instruments (one for each curricular area). The third question dealing with the extent to which teachers actually employ decision-making and curricular development skills in their professional lives will be answered through classroom observations.

In addition to this primary data source, the Lansing School District has made available to the Tenth Cycle Teacher Corps a complete data base of pupil achievement for the target Teacher Corps school as well as several other similar elementary schools in the district. Although it is not expected that students will show an immediate change in performance on the standard test measures included in this data file, it is expected that over the long term as teachers gain in competence and confidence in curricular decision-making and development, that student scores will show a systematic improvement. We therefore hope to track the performance of the students at the target school over an extended period of time.

MURRAY STATE UNIVERSITY PROJECT

Project Director: Dr. Jerome Hainsworth
Project Evaluator: Dr. Bill Price
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Murray, Kentucky 42071

Project Goals

This project proposes to create a teacher-student learning situation that will identify and maximize divergent learning potentials and styles in both teachers and students to the end that each child will be properly classified as "gifted."

The primary objectives of the project are:

1. Identify talent strengths as identified on tests of academic, creative, planning, communicating, forecasting and decision-making abilities.
2. Developing organizational structures to focus a wide range of efforts on maximizing and developing identified talent strengths.
3. Developing teaching strategies which show the greatest promise for each teacher and intern developing student talents.
4. Integrate teaching activities with a variety of means for systematically gaining information on students' potentialities and progress.

Research Adoption

There exists a substantial body of research that indicates most children possess some specialized ability of a high order if enough ways were available to test for those abilities. That each individual child does have unique talents is critical to this project. The purpose of this project is to create within the school a unique atmosphere where the teacher has the opportunity and has developed the skills to view and discover the uniqueness of each child.

Bloom's succinct statement expresses the project's purpose:

> The consequence of teachers' viewing each individual as possessing unique talents of a high order (in contrast with viewing only a small group — perhaps 10 per cent — as having a high generalized ability) are quite profound. The teachers' appreciation of the unique merits of each child could have important consequences for the ways in which the student and teacher interact as well as for the ways in which the teacher might try to help each student in the learning process.

The purpose is focused upon the demonstration requirement of the training for systematic adoption of research findings and uses instructional and organizational strategies of human and physical resources to demonstrate the adaptiveness of research.

In brief, it is to demonstrate the practicality of the research which has found almost all children to possess unique talents of a high order and

capable of being called "gifted" in some area of their development. This project will apply the research in this area in a middle school teacher-student learning situation in which low-income and minority students comprise approximately one-third of the student body. The project will also demonstrate the type of teacher training and retraining necessary to be provided by teacher training institutions for meeting the problems related to students of low-income families.

"Gifted" is defined in this proposal as a talent or ability a person possesses that can be identified and developed that is of a unique and high order. This talent may be one that is not revealed in a general abilities test or in the standard norm tests that are administered with a single result reported. It will therefore be necessary to administer ability tests and other pre-assessment instruments, both commercial and teacher made, to discover divergent ways of classifying and developing special unique talents that students possess. It should be emphasized that identifying and maximizing each child's uniqueness is not a simple matter of test construction and administration. The program being developed is a unique student-teacher interaction process that could have significant educational results. This interaction is based on totally new concepts for experienced teachers who have been teaching on the previous assumption that students fit the bell curve of low to high achievers with the largest percentage of children in the middle. The new concept that Bloom and other researchers have demonstrated is that each child has some ability that is useful and important that is at the high or gifted end of the capability scales. Specific training in human potential as well as diagnostic prescriptive and evaluation techniques are required for experienced teachers as well as teacher interns to demonstrate the research application to students of low-income families.

Project Research and Evaluation Activities

Research and evaluation activities within the project focus upon the measurement of impact in at least four dimensions: (1) impact upon students, (2) impact upon teachers, (3) impact upon the school and its learning environment and (4) impact upon the community served by the school. The assessment program endeavors to measure more than student performance alone, although academic achievement levels will be examined through analysis of C.T.B.S. scores. A comprehensive and realistic measure of student outcomes must include measurement of key factors descriptive of conditions and educational processes which influence student performance. These include factors such as teacher attitudes toward a variety of educational concerns and processes, as well as measurement related to degree of student classroom participation, teacher emphasis on reinforcement of self-concept, levels of individualization within the classroom, and development of potential in unique talent areas.

The basic concept around which this project is organized necessitates the generation of data of at least two basic types: (1) identification of specific and unique talents for each student, including the normal range of academic competencies determined by the C.T.B.S., and special potential in the areas of forecasting, decision-making, creativity, planning, communications, and leadership, and (2) descriptions of each teacher's instructional environment — educational process data — as perceived by

students within that environment. Talent identification data and educational process data both become input for the inservice instructional program as teachers develop, refine, or modify instructional systems, materials, management systems, organizational patterns, and interaction patterns within their individual teaching environments.

Educational process data is collected primarily through the use of the Student Activities Questionnaire (SAQ), a 65-item instrument which focuses upon student perceptions of their learning environment. The use of students' perceptions as opposed to available observational/analysis processes for the collection of these data offers one clear advantage: process data available to project staff, interns, and teachers is provided in both normative and on an individual student basis.

Since the school itself can be considered as a single environment, it was deemed essential that specific data be generated that teachers and administrators might use in decision-making related to the total school and its program. To act and react intelligently, every member of the school community needs to know how other members perceive the realities of school life, of the environment of the school — the interplay among its people, processes, and resources. Important dimensions of the environment include the way each individual feels about himself and the perceptions, values, expectations, satisfactions, and dissatisfactions of the various groups that make up the school community. To enable the school faculty and administrators to have and use this kind of feedback, data was gathered using the E.T.S. version of Questa — Questa I and Questa II.

The basic research findings that this project has identified indicate that unique talents in children can be identified and developed. The emphasis in this statement is on the words developed or enhanced as well as identification. This project's goal is not just to recognize uniqueness of individuals of a high order but to provide a diagnostic analysis and a positive prescriptive program that will enhance the identified abilities.

OKLAHOMA PROJECT

The Oklahoma Teacher Corps Project is located at Moon Middle School, 1901 N.E. 13th, Oklahoma City, Oklahoma 73117. The project director is Dr. Thomas H. Gallaher whose office is located at the University of Oklahoma campus, 555 Constitution Avenue, Norman, Oklahoma 73037. Mr. James A. Smith, Program Development Specialist, is responsible for coordinating evaluation activities and storing and retrieving documentation data. He may be addressed at the project site.

The Oklahoma Teacher Corps Project was designed as a demonstration center which would promote professional and personal development among educational workers of various role groups through the implementation of a training complex. In supporting this major purpose of educational personnel development, the project employs, at virtually every level of project operations, a collaborative decision-making strategy involving persons in institutions of higher education, the public school system, the target community to be served, as well as those persons at the project site.

The three major program components in the project are: Training for Inexperienced Teachers, Training for Experienced Teachers, and Community Volunteer Training. The major thrusts of the training components are categorized as follows: (1) Multicultural Education, (2) Community-Based Education, (3) Accommodating Exceptional Children, (4) Study of Teaching, and (5) Study of Organizations.

Project goals include the following:

1. Through a collaborative effort institutions of higher education, the local education agency and the community served by it, will develop a plan for continuous implementation of a staff development process and the expansion of the concept district-wide.
2. To develop procedures for planning, implementing, coordinating and evaluating the Teacher Corps Project.
3. To establish a training complex at a school site through which personnel development programs will be delivered to groups and individuals.

    a. Program Components
        1) Inexperienced Teacher Component
        2) Experienced Teacher Component
        3) Community Volunteer Component
    b. Training Thrusts
        1) Community-Based Education
        2) Competency-Based Education
        3) Accommodating Exceptional Children
        4) Multicultural Education
        5) Study of Teaching
        6) Study of Organizations

4. To integrate the resources of Teacher Corps (local, network, and national) and those of the community and institutions of higher education in meeting the needs of educational personnel at the project site

5. To improve the learning environment and experiences of the student population to be served.

6. To establish an effective system of communication for the Teacher Corps Project.

   a. Internal Information System
      1) Management Team
      2) Project Steering Committee
      3) Staff Advisory Committee
      4) Community Advisory Council
      5) Project Staff
   b. External Information System
      1) Board of Education/Public School Officials
      2) State Department of Education
      3) Universities
      4) Community
      5) Teacher Corps (National, Network)

7. To monitor progress, assess project effectiveness and disseminate results to relevant publics.

8. To assume responsibility for Teacher Corps 12th Cycle proposal.

The project's major intervention strategy is the establishment of a training complex to facilitate the implementation of a continuous, personnel development process at a school site. All training programs will be developed based on needs identified by target groups. The delivery modes will include group and individualized/personalized instruction in a competency-based format. Each training program will incorporate aspects of the six training thrusts listed above.

Target Population

The major target population to be affected by the project is the faculty and staff of the Moon Middle School, the target site. Figure 1 reveals a profile of the faculty and staff at Moon.

Experience		Highest Degree		Race		Sex		Age	
1-4 yrs.	36%	Bachelors	53%	Black	26%	Female	56%	20-25	14%
5-10	34%	Masters	43%	White	56%	Male	40%	26-30	31%
11-15	9%			Other	9%			31-40	26%
16-20	12%							41-50	14%
Over 20	4%							51-60	9%
								Over 60	2%

Figure 1

The data indicate a relatively youthful, somewhat inexperienced, minimally licensed, multicultural faculty and staff who, during negotiations with the school district for a possible target site, requested that the project be located at Moon. The request alone is significant evidence of a faculty's ability to recognize re-training needs and the potential resources of Teacher Corps in assisting in their professional development.

The administration and faculty at Moon are seeking to implement team teaching, improve instructional skills and interpersonal relationships, develop better communications, provide more meaningful educational experiences for students, improve faculty morale and student attitudes toward school.

Of secondary importance as target groups to be affected by the Oklahoma Teacher Corps Project are: (1) the student population at Moon Middle School, (2) the community served by the school, (3) institutions of higher education, and (4) the school district.

The Oklahoma City school district is currently operating under a court-ordered desegregation plan which involves the cross-town bussing of students to achieve pre-determined ethnic ratios. Moon Middle School is located in a community predominantly populated by low-income, black families in the east-central part of Oklahoma City. Under the desegregation plan, the Moon student body is comprised of 1,040 students, grades 6-8, with approximately 33% of the student body identified as poverty-stricken. The ethnic mixture of the student body is 32% black, 54% white, 8% Native American, 1% Chicano, and 1% Vietnamese.

A needs assessment study indicated that student suspensions for rule infractions were high at the school, achievement was relatively low, and that even with the existence of special education classrooms, and public support services, a large number of students with special learning/behavioral problems were being neglected.

While the school mainly serves the east-side community in which it is located, the desegration plan requires students from other areas of the metropolitan district to be bussed to Moon. Thus the community actually served by Moon Middle School becomes virtually the entire school district. Community-related project activities, then, involve parents of students from approximately thirteen "feeder schools."

The Oklahoma Teacher Corps Project is a consortium-governed project. The Oklahoma Consortium for Urban Teacher Education was formed in 1969 and currently consists of the following institutions:

Oklahoma City Public Schools
Bethany Nazarene College
Central State University
Langston University
Oklahoma City University
Oklahoma State University
Southwestern Oklahoma State University
University of Oklahoma

The project also has as its target group these institutions of higher education by influencing their programmatic efforts toward competency-based teacher education, the exchanging of personnel for consultative and

instructional purposes, the mutual sharing of resources and other support services. Thus, the project seeks to influence collaborative efforts in teacher education on a state-wide basis.

Assessment Instruments

To provide baseline data for future comparison the following assessments and measurements were administered to Moon Middle School faculty and staff.

Minnesota Teacher Attitude Inventory. The MTAI was administered on a pretest/posttest basis to determine or differentiate those teachers who held positive attitudes toward children and their profession. The reliability of this scale for 25 ratings was .93.

Organizational Climate Description Questionnaire. The OCDQ was administered on a pretest/posttest basis. This instrument provided useful information describing the organizational climate of the school. The instrument was developed by Andrew Halpin.

Teaching Different Pupils. This instrument, developed by Dorothy Skeel, was used to discriminate between teachers with positive and negative attitudes toward culturally disadvantaged children.

Staff Information Inventory. This information form was used to provide a profile of the staff at Moon Middle School. The instrument was locally developed.

Moon Middle School Needs Assessment. The information obtained from this instrument provided the staff with a list of need indicators from which criteria variables could be determined. This instrument was district constructed.

Course Interest Survey. This instrument was used to further validate the needs assessment information on priority training needs. The survey was locally developed.

Workshop Evaluation Questionnaire. The purpose of this instrument was to determine the effectiveness of the preschool workshop in attaining its objectives of: (1) establishing departmental goals, (2) determining policy and, (3) providing baseline information. The questionnaire was locally developed.

To provide evaluation data for future comparison changes in student achievement, attitudes, perceptions, and behaviors the following information was collected. To study grade equivalent gains, a random stratified sample of one hundred

students from each of three educational levels (grades 6th, 7th, and 8th) was administered the Metropolitan Achievement Test on a pretest/posttest basis. This battery is widely used among schools and its reliability and validity is relatively acceptable. The use of this test by the Oklahoma City Public Schools make its selection for the project both desirable and expedient.

Grade	Subtest	Form
6	Word Knowledge, Reading Language, Spelling	Intermediate (Form G)
7	Word Knowledge, Reading Language, Spelling	Advanced (Form F)
8	Word Knowledge, Reading Language, Spelling	Advanced (Form G)

Learning Environment Inventory. This instrument was administered to a random sample of 100 students from each of three levels. The instrument measured students' perceptions of the learning environment in their classrooms.

The Children's Self-Esteem Inventory. One hundred students from each of three grade levels were randomly selected and administered this instrument. The Oklahoma City Self-Esteem Inventory has a test-retest (stability) correlation of +0.88, and content validity based on an expert panel of Title I teachers, consultants, and administrators. Concurrent validity data reveal a correlation of .706 with math computation.

Student Population Information was obtained from the school district's Department of Research and Statistics for the purpose of proposal writing. This information was revised as the project began to obtain a more current and accurate reflection of student population characteristics.

Attendance and Suspension Data. Information regarding these variables was obtained from the school district's Department of Research and Statistics where this data is continuously gathered and stored.

Referral/Placement Ratio. Data regarding the number of students placed in special learning programs after being referred for diagnosis are monitored from records stored in the school counseling department.

SAN JOSE STATE UNIVERSITY PROJECT

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Evaluator: Bruce Joyce
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Project Goals and Objectives

The principal goals of the San Jose State University Teacher Corps Project are:

1. To utilize the results of four different lines of educational research (teacher self-analysis, models of teaching, pupil learning styles, and teacher decision making) to assist inservice and preservice teachers to develop skill in studying and improving the teaching and learning that occurs in their classrooms.
2. To provide teachers with options to select from an array of training possibilities as well as to generate their own plans for training experiences in order to meet their training needs as completely as possible.
3. To integrate, and therefore, adapt more adequately the findings of several related but separate lines of research on teaching: specifically, to relate training in models of teaching to pupil learning styles, and to relate both of these to teacher decision making.

The objectives of the project are:

1. To provide for each student those teaching/learning experiences that build upon his learning style and his particular learning strengths.
2. To provide a teaching/learning program that attends to each student's special culture.
3. To build an information base that attends to relationships among teaching repertoires and learning styles.
4. To involve parents in the instructional decision-making process.
5. To train parents in the use of instructional strategies that will enhance learning in the home.
6. To broaden teachers' repertoires of teaching skills through training in alternative models of teaching.
7. To develop a teacher observation, feedback, and self-analysis system that attends to a teacher's skills repertoire and the learner's strengths and learning style.

8. To build teachers' ability to adapt teaching to each student's learning style.

9. To provide immediate feedback to the teacher regarding his performance for purposes of self-analysis.

10. To provide a cumulative record of teacher-learner interactions and their outcomes for purposes of instructional decision-making.

11. To train four teachers new to the profession in skills related to self-analysis, models of teaching, adaptation of contemporary research findings, learning styles, and instructional decision-making; to develop their capabilities for responding to the needs of students from multi-cultural backgrounds.

Description of Interventions and Treatments

Teachers in the Rogers School are offered access to any one or any combination of training activities based on the several lines of research outlined in Section II. The training components offered are these:

Component I: Self-Analysis of Teaching

This component of the training program was designed to help the teacher to study his/her interaction with a single child, who is selected by the teacher because of some learning problems. The teacher decides what teaching procedure might work best with the child, and also determines what part of the interaction will be studied. To help teachers study this interaction, trained observers watch the teacher and pupil working together, and record what happens on tally sheets or on a small, hand-held typewriter like machine. These data are sent over the telephone to a computer, and the computer sends back a graph or some other easily-read display of information for the observer and teacher to see. To help the teacher understand the computer display, the observer is able to "translate." As a result of this type of study, teachers identify which procedures work best for particular learning problems (Morine & Vallance, 1975; Semmel, 1972).

Component II: Models of Teaching

Training in various models of teaching forms a major component for both interns and experienced teachers at Rogers School. Each model of teaching is a teaching/learning strategy that has certain goals and a specific sequence of activities to achieve these goals. Each model has an instructional system that teaches the theory of the model, trains the teacher in the critical skills of the model and provides feedback so that the use of the model can be mastered.

Through the use of models of teaching, teachers can

design a wide range of learning environments. Some models of teaching have group process as their emphasis, others stress personal skills like understanding feelings and creativity and other models have developing concepts and thinking processes as their emphasis. The work of Bruce Joyce and Marsha Weil, as expressed in their book *Models of Teaching* (1972), is the major source for the training.

Component III: Applying Contemporary Research Findings

This component of the training program was designed to help teachers find out what is currently being learned by researchers about effective teaching. The Far West Laboratory was to collect this information about current research, and file it in order to make it easy to select information related to teachers' classroom concerns. Teachers were expected to identify specific concerns and seek assistance via the "research counselor," who would consult the data file at the Far West Lab.

The initial plan is being modified. The research counselor has been meeting other types of specific concerns of teachers. Rather than seeking research findings, teachers at Rogers School are in need of counseling related to children, parents, other teachers, administrators and the Teacher Corps staff. A fuller development and demonstration of this component is underway under Dr. R. Dershimer's leadership.

Component IV: Learning Style of Students

As in the "self-analysis of teaching" component, this approach uses a trained observer. Teachers select pupils who are not responding or behaving as well as they might and the observer takes careful notes over several days to discover the pattern or "style" of learning that each pupil shows.

After studying the classroom learning "styles" of the pupils the observer shows the teacher the results of her observations and they, together, work out a plan to improve the learning situation for each pupil. Changes in seating arrangements, ways in which assignments are made, ways in which disturbances are dealt with, etc., are suggested and agreed upon. This is called the "planned treatment."

Once a plan has been worked out the observer visits the classroom regularly and keeps notes on each pupil's responses to the new plan. The notes are shared each time with the teachers and adjustments to the plan are made if needed. The data gathered each day are recorded on a table (or a graph) so that the teacher can easily determine how the pupils' learning styles are changing as a consequence of the planned treatments in the classroom (Spaulding, 1971).

Component V: Teacher Decision Making

This component of the project grows out of the training of the other four components. For example, teachers who have had training in all four components will have:

1. studied their own teaching to learn which procedures work best for particular learning problems.
2. learned several new teaching procedures (models).
3. gained information from the research counselor to help them deal with their classroom concerns.
4. identified their pupils' individual learning styles.

They should be able to bring all of this information together to make decisions about how best to work with the various pupils in their classrooms.

Component VI: The Exceptional Child Component

The exceptional child program is based on the identification of each pupil's characteristic social behavior and task orientation by means of close observation in the classroom. As a consequence of such observation, combined with consultation with teachers, parents, and special education personnel (as appropriate), personalized programs of classroom instruction and behavioral management are developed for all children. These personalized, diagnostic/prescriptive procedures do not require the conventional labels of special education. Instead, teachers are assisted in making use of observation data to design appropriate educational environments suited to each pupil's own way of coping with the social and academic forces of the regular classroom.

Description of the Target Population

Primary emphasis of training activity is upon classroom teachers and the interns. However, many target groups are involved. The discernable groups and individuals are:

1. Four interns
2. Eighteen classroom teachers
3. Speech specialist
4. Reading specialist
5. Teachers (2) of the educationally handicapped
6. Team Leader
7. Community Coordinator
8. Site Coordinator
9. Principal
10. Eighteen Classroom Instructional Aides
11. Parents in parent/child study groups
12. High school tutors
13. University faculty in teacher education (20)

Description of Indicators of Success

Success of training programs in the San Jose State University Teacher Corps Project is determined by examination of trainee change. Base line measures are compared with process and outcome measures of the following types:

1. Involvement in planning and training activities.
2. Participation in planned training activities.
3. Attitudes toward training activities as measured by the Levels of Use of Interviews (developed by Frances Fuller and Gene Hall of the University of Texas at Austin).
4. Acquisition of prototypical behaviors vis-a-vis each instructional and classroom management model (as measured by the T.I.S. observational system developed by Bruce Joyce and STARS developed by Robert Spaulding).
5. Changes in pupil attitudes, classroom behavior and achievement data as a function of training events (as measured by Spaulding's CASES classroom observation system and by Rogers School achievement test records).

References

Joyce B., and Weil, M., *Models of Teaching*. New Jersey: Prentice-Hall, Inc., 1972.

Morine, G. & Vallance, E., *Teacher and Pupil Perceptions of Classroom Interaction*. Beginning teacher evaluation studies technical report, special study B. San Francisco: Far West Laboratory, 1975.

Semmel, M.I., *Toward the Development of a Computer-Assisted Teacher Training System (CATTS)*. Technical Report 7.2. Indiana University: Center for Innovation in Teaching the Handicapped, May, 1972.

Spaulding, R.L., *Educational Intervention in Early Childhood*. Vol. I. Durham, North Carolina: Duke University, 1971.

STANFORD UNIVERSITY PROJECT

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Project Goals

1. To improve the education of children from low income familes.
2. To improve the programs of preservice teacher preparation offered by Stanford University.
3. To improve programs for continuing professional education at Stanford University.
4. To determine the effectiveness of our design for applying research findings.

Research Interventions and Treatments

Each component of the complex Stanford-Hoover project determines what research strategies, interventions, and techniques it will use. We had anticipated during the planning stages, that reliance on previous research results and willingness to implement small-scale research projects at the school site would be a major part of the project. Although we have not been as successful as we had expected in using validated research results, and in implementing our own studies, various components of the project have tried a number of research interventions.

The Math Work/Study team conducted a study to see how much and what kinds of math learning is retained over the summer. This involved testing in the spring of 1975 and again in the fall of 1975 to see what students retained. Results of this study will be analyzed to help determine what and how to teach so that maximum math learning is retained during vacation periods.

The Language Arts /Work Study team has examined literature on team-teaching, using contracts, working in open space, and is now looking at effects of language interference versus reading problems in children's reading errors. This group plans to take oral reading samples of children identified by teachers as being poor readers and/or of a Spanish language family (the design is not definite yet), examine them for reading and language interference errors, and modify teaching techniques accordingly. The language arts teachers also plan to introduce training in sentence combining (O'Hare's work serves as the guide), and compare students' composition writing ability before and after work in sentence combining techniques.

The Physical Education Work/Study team plans to administer a survey of attitudes toward physical education to Hoover teachers, students, and parents. In addition, they hope to administer a survey to find out what subjects within P.E. the students and their parents want taught. When the results of this survey are analyzed, they hope to be able to implement a

"differentiated staffing" program using parent and community volunteers to teach certain skills or courses which the regular teachers do not know how to teach, such as Mexican Folkdancing. This group has made great strides in implementing their co-educational physical education program, and has done much in developing contract programs. Next year they will try a study on three groups (one working on totally independent contracts, one working the traditional way, and the third using a combination of independent contracts and the traditional method). The group has used video-taping equipment to tape students swimming and doing various other activities, and has used the tapes to focus students' attention on particular aspects of their performances. Although no actual controlled studies have been conducted to date, we have seen great changes in this group, evidenced by the way teachers are conducting their physical education classes, and by the organizational arrangements they are interested in trying.

The Social Studies Work/Study team has been working largely in curriculum sub-committees, on seventh and eighth grade curricula, on a multicultural unit, and on a unit dealing with use of newspapers.

The Bilingual Education Work/Study team administered a Language Dominance Survey to 85 seventh graders who had been identified by their teachers as being from a Spanish-language background. Unfortunately, the test was designed for elementary school children and although the students at Hoover Junior High have very low reading scores, their knowledge of English is sufficiently great that the test proved to have too low a ceiling, and was an insufficient discriminator of English-Spanish language dominance.

The Multicultural Work/Study team administered an attitudinal survey, the Multi-cultural Climate Scales, to all Hoover students and faculty, which is to serve as the basis for developing the multicultural team's priorities.

The Community Involvement Work/Study team merged with the Community Council, set goals, including the implementation of a tutoring program, and developed, together with the Evaluation Unit, a questionnaire to be administered to the community. However the principal would not permit the administration of this survey.

One of the project's goals had been to preface work in any component by an extensive literature search. Many components turned up little of use to address the specific problems which had been identified by the Hoover-Stanford Work/Study teams. the Open Space Work/Study team, in particular, found that little has been written of a general nature which would help not only the Hoover teachers in planning their move to a new open-space school, but all teachers in similar circumstances. Thus, this group developed its own manuals, "How to Survive in Open Space," and "A Guide for Teachers Moving into Open Space" which are compilations and distillations of everything found in past literature, to which has been added the wisdom gained by the team this current year. The Open Space Work/Study team has also developed an instrument designed to determine what factors encouraged teachers to work cooperatively, and to enable teachers to monitor anticipated problems involved in the move to an open space school. This instrument has been administered to the Hoover faculty, and to the faculties of two other San Jose junior high schools approximately one month before each one moved into its new open space school. The instrument will be readministered approximately three months after the move to the new schools.

The Evaluation Unit has administered questionnaires to the Hoover faculty and to the participating Stanford faculty members which will be used to assess changes in attitudes along a variety of indicators through the two years of the project.

The preservice program uses a pre-post test mode for the cognitive aspects of the training provided by the PDS and the team leader, but the interns' experience is not reliant on research techniques or interventions.

Target Populations

The primary target populations are the Hoover teachers, aides, and interns. The students, community, and administrators at Hoover are secondary targets, as are the Stanford participating faculty and research assistants. We might call some other target groups tertiary or peripheral, but the project is being watched by them, and may have considerable impact on Stanford faculty who are not directly involved, and on the administration of the San Jose Unified School District.

Indicators Used To Determine Success

We have defined several different kinds of success which we hope to achieve. Some involve changing classroom management techniques, such as using team-teaching and open space, which are readily observable. Some involve making curriculum improvements, which are also easily documented. To gauge degree of community participation, we use attendance records at meetings, lectures, presentations, numbers of volunteers for certain tasks, etc. In addition, several surveys (a list follows) have been administered, and we can look at students' grades and scores on standard achievement tests.

Language Dominance Test (85 seventh graders)
Multi-cultural Climate Scales (all Hoover students and teachers)
Survey to Hoover teachers
Survey to participating Stanford faculty
CTBS scores for all Hoover students

However, a major part of our assessment of success depends on observation by project participants and by the evaluation unit. We have come to feel that in our particular situation, it is best to keep the number of instruments administered and tests given down to an absolute minimum, so that we can get full cooperation on the few, carefully chosen ones we deem crucial. Because most project participants and the evaluation unit meet frequently, we are able to maintain with a high degree of certainty that our observations are legitimate indicators of success for our project.

UNIVERSITY OF CENTRAL ARKANSAS PROJECT

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Description and Listing of Project Goals

1. To introduce into the teacher-training and retraining program, a model to increase the proficiency of regular classroom teachers to meet the educational needs of children with learning or behavioral problems, who are in their classrooms.
2. To provide on-site instruction for regular college students as a college supported activity to complement the retraining program.
3. To continue the development and implementation, as well as the evaluation, of a competency-based teacher education program for the University of Central Arkansas.
4. To provide in-service or site-based retraining activities emphasizing curriculum development and materials development among teachers of primary school aged children.
5. To provide parents with home-use materials to complement the school-based educational program and provide training in the use of such materials. (To involve parents in the learning experiences of their children.)
6. To become acquainted with and participate in the involvement of community resources found in the target community.

Description of Intervention and Treatment

The Tenth Cycle Teacher Corps Project at the University of Central Arkansas has two focal points — improving the professional competency of teachers in meeting the special needs of mainstreamed students, and providing selected readiness activities for handicapped students who will be mainstreamed into the regular classroom.

The paradigm for improving teacher competency is a competency based inservice program developed at the Education Service Center, Region 13, Austin, Texas. The materials provide approximately 40-50 hours of instruction delivered in three phases. The program focuses on skills, concepts, and attitudes necessary for elementary teachers to assist mildly handicapped students with the environmental orientation and adjustment required of

them when they are mainstreamed into the regular classroom. More specifically, the program deals with the problems of individualizing instruction, utilizing alternative management strategies, and interfacing the regular and special education teacher.

Phase I — Mainstreaming — involves approximately 12 hours of instruction which is facilitator-directed but involves the participants in large-group and small-group activities. Phase II — Skill Building — seeks to develop skills through problem-solving activities related to individualization of instruction. Participants work independently or in small groups at data banks. Examples of data bank topics are: Assessment/Evaluation, Communication, Grading/Reporting, Learning Styles, Learning Environments, and Curriculum Selection. Phase III — Implementation — provides the processes and resources for the implementation of individualized instruction.

As a first step in the provision of readiness activities for the special education students who are to be mainstreamed, the teacher interns administer an informal multi-disciplinary inventory. The results are used to diagnose the students' strengths and weaknesses. A consulting teacher then works with each child on an individual basis preparing him or her for entry into the regular classroom. The child is introduced to the next and the teacher given special instruction in those skills and concepts which have already been studied by the regular students. The consulting teacher also teaches the student the rules of the classroom and introduces him or her to the regular teacher and members of the class.

Target Population

Franklin Primary School is a K-3 school located in the central area of Little Rock. It has a staff consisting of one principal, two secretaries, 28 classroom teachers, with five special teachers including: two special education teachers, one remedial reading teacher, one music teacher, and one librarian. The student body consists of 720 students with a ratio of 63% black and 37% white. One-half or more of the students are reading below grade level. Twenty-one percent of the student body is housed in a Federal Housing Project near the school. This is the only neighborhood school in the Little Rock School District.

Description of Success Indicators

One indicator of the success of the Teacher Corps Project should be the impact of the inservice training upon the teacher. The attitude of the teacher toward special education students and toward curriculum will be measured using the Curriculum Attitude Inventory developed by Michael Langenbach, University of Oklahoma. This instrument was constructed to discriminate between teachers with positive and those with negative attitudes toward curriculum use and planning and has been validated and used to determine if teachers in an inservice situation with curriculum planning experience have a more positive attitude toward curriculum use and planning than do inservice teachers without such experience.

Another aspect of the impact upon teachers is knowledge of exceptional children and of the placement program for such children. The Rucker-Gamble Education Program Scale will be used to measure this

knowledge. The instrument requires the respondent to suggest the best educational placement for 30 different children. Kinds of placement include: regular classroom, consultant conference, consultant and direct services, resource room, part-time special education classes, full-time special education classes, and placement in a residential school rather than the public school.

A second facet of the project deals with the impact of readiness activities upon mainstreamed students. Two specific areas have been selected for measurement — self-concept and academic achievement. The Self Observation Scale will be used to measure the way children perceive themselves and their relationships to peers, teacher, and school. It measures five dimensions of self-concept: (1) self acceptance, (2) social maturity, (3) school affiliation, (4) self security, and (5) achievement motivation.

The instrument used to measure academic achievement will be the SRA Achievement Series. This is a widely-used, well-known battery which measures several areas of academic growth. Scores from this will be used as an indicator of the progress of mainstreamed students and will also be used to compare the performance of regular students who are assigned to classes which contain mainstreamed students with the performance of regular students who are not exposed to have mainstreamed students in their classroom. It should be noted that the original plan called for the use of the Metropolitan Achievement Test to be used for measuring achievement. The change to the SRA Achievement Series resulted when the school system involved switched their system-wide testing program.

UNIVERSITY OF OREGON PROJECT

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The University of Oregon Teacher Corps Project in Eugene began with two fundamental assumptions. The first is that many inservice teachers are inadequately prepared to meet the needs of exceptional children. The second is that there is an abundance of research-based teacher training material, developed over the past decade with federal funds, which has not been compiled and disseminated effectively to inservice teachers.

Project Goals

A common feature of many of these recently generated training materials is that they are focused toward the exceptional child's needs. Therefore, an over-riding goal for our project is to facilitate the connection of inservice teachers with research-validated techniques for improving instruction of all children, and particularly exceptional children.

Project Activities

The project research team spent the fall ordering, reviewing, and evaluating materials from all over the country. If a training package fit into one of our four project categories (diagnostic and prescriptive teaching; competency-based curriculum development; program goal assessment; and community resource integration), it was ordered and examined rigorously for careful research validation data. Of the 255 packages reviewed, only 51 met our objective criteria for incorporating the best available research.

Target Population

At present, project members are working closely with teachers, interns, aides, and parents to select from materials which met our criteria and which appear to meet needs in the site schools.

Our elementary site is a Title I designated school where over 50% of the student body fits the state definitions of exceptional child.

The secondary school site also was selected on the basis of having a high concentration of exceptional children. Clearly we have an appropriate audience, and the project aim of using the best available training materials to help teachers teach these students is a critical one.

The training of our interns provides another level within this general project focus. One of our secondary interns — an exceptional person in that she is blind — is concentrating on reading instruction with adolescents who have not yet mastered decoding. As she works with her master teacher to

gain competence with teaching techniques used in her school, she is simultaneously learning from project members in university classes about research-validated techniques for teaching reading. Consequently this intern will be increasingly able to contribute to, as well as draw from, the expertise available at her training site.

The elementary interns work almost exclusively with exceptional children in a variety of settings. There is developing an increasing "give" to balance "take" as the interns become aware of what is, versus what might be.

So far we have found cooperating teachers at both levels very concerned about addressing the unique aspects of the exceptional child and very receptive toward new ideas from both the interns and the demonstration component of our project.

WEST VIRGINIA TEACHER CORPS PROJECT

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Project Goals and Objectives

A. Community Education
   1. Develop a home-based early childhood education program for Clay County parents.
   2. Facilitate increased community participation in educational/community programs and projects.
   3. Where feasible, develop a comprehensive community supported volunteer tutorial program focused on the expansion of existing federally funded programs and on becoming self-supporting should federal funding cease.

B. Research, Documentation, and Evaluation
   1. Design and establish a data-based research process-model which will provide information on a rural Teacher Training Complex with respect to participant and total program accountability.
   2. Design and establish a management information delivery system for the implementation of a rural Teacher Training Complex with respect to project activities and results.
   3. Design, develop and operationalize a comprehensive project evaluation design.

C. Teacher Training and Retraining
   1. Design and implement a model demonstration training/retraining complex in Clay County which will include involvement/participation from the SDE, the local school system, the community, and IHE.
   2. Field test an innovative graduate level elementary education program which will be field-based and responsive to the needs of the Appalachian school community which it serves.

D. Local Education Agency
   1. Provide opportunities to staff renewal through a continuous program of retraining/development.
   2. Nurture and enhance the dignity and pride of children, teachers and community persons in their Appalachian culture and heritage.
   3. Design and implement an individually guided education program in the Teacher Corps Training Complex.
   4. Determine status of curriculum in the Training Complex.

Research Intervention

The principal research objective of the project is to test whether the College of Graduate Studies Elementary Education program can produce significant measurable changes in teachers and, consequently, in students. This model program represents a rather novel approach to training teachers, designed to teach them to employ a diagnostic-prescriptive model of teaching and based on the application and adaptation of research models and findings to the elementary-school classroom.

Any instructional strategy or technique must be adapted by an individual teacher not only to his own personality and style but also the material which is being taught and to the individual abilities of the students. The individual teacher is, presently, the only person who can adapt research on learning and instruction and on individual differences to the classroom setting.

A non-traditional research-based program has been developed at the West Virginia College of Graduate Studies to train teachers to apply research findings in the classroom. This program calls for a strong foundation in educational research, assessment, curriculum and instructional planning, and evaluation. This strong planning and assessment foundation is coupled with some basic, but indepth, study in psychology and human development. A complete description of this program may be found in the Elementary Education Program Area Self-Study (1975) and in the syllabi of the program courses.

Target Population

The Elementary Education Graduate program is being offered to the interns and to the teachers of the Clay County, West Virginia, school system. Specifically, however, the project training complex is located in the Clay Elementary School, the largest elementary school in the county. The effects of the intervention are expected not only on the teachers but also, and as a consequence, on the Clay Elementary School students.

Although Clay is a rural Appalachian community, the intervention is in no way intended to be specific to such a population. The effects should be generalizable to almost any group of elementary school teachers and students.

Indicators of Success

The project employs basically a pretest/posttest design to test the impact of the graduate program on teachers and students. Among the measures are:

a. the Minnesota Teacher Attitude Inventory (MTAI), a measure of teacher attitude;
b. the Purdue Teacher Opinionaire, which measures teacher perceptions of the school environment, the community, and community values;
c. a measure of teacher self-esteem;
d. a measure of knowledge of content of the graduate program;
e. the Student Attitude and Activity Survey, a measure of student attitude toward school and various subjects, student self-concept, and participation in individualized learning;

f. student achievement, the Stanford Achievement Tests and the Educational Development Series; and
g. teacher classroom behavior, Flanders Interaction Analysis and other rating scales.